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Table of Contents

PIETER BRITS
The need for human rights training in the military

JOHANN DE WAAL
Students need to understand and embrace project management principles to increase their chances of success

HANNES NEL
The impact of digitally mediated communications on the academic integrity of online learning and assessment

STEPHEN BARNARD
Barriers to learner transfer of learning
From the editor

With this journal the ball is set rolling for an academic debate on educational technology - the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Januszewski & Molenda, 2008 as in Hlynka & Jacobsen, 2010) - in the South African National Defence Force.

This definition immediately moves the concept beyond a tool metaphor: it is firstly a scientific study and practice; a study and practice of “the application of knowledge, systems and techniques to the improvement of human learning,” as Neville (1977:9) already quoted nearly four decades ago. Secondly, the purpose of educational technology is facilitating learning and improving performance. “Too often, we ask how, but not often enough why,” (Hlynka & Jacobsen, 2010).

John Fallon, the chief executive of Pearson in the foreword of The Learning Curve 2014 - an Economist Intelligence Unit report (2014:01) considering what new lessons are to be learned about how to inculcate skills in students; examining how to maintain or expand skill levels among adults and exploring the relevance of developed-world answers to these questions for emerging markets - puts the lack of attention paid to skills provision as one of the most pervasive and endemic problems in education in just about every country. “Even in the richest countries, fewer than half of school students are career or college ready, with the result that higher education institutions and employers often find themselves re-skilling school leavers before they embark on the next phase of their lives.”

Justifiably the global educational debate has shifted from a focus on learning inputs to learning outcomes, and questions are asked such as: What are the multi-dimensional abilities required in the 21st century to succeed in studies, work and life and what innovative support systems are needed to help students master these? There are many rewards for a country empowering its youth and workforce. As The Learning Curve 2014 (The Economist Intelligence Unit, 2014:1-24), points out, half of the economic growth in developed nations in the past ten years can be attributed to better skills.

But “just as our workplaces need new employees who can critically think, creatively problem solve, collaborate, and communicate, so these skills are essential to a healthy, vibrant civic life,” says Barbara Stein (2014) the Director of Strategic Partnerships at the Partnership for 21st Century Skills (P21). “A good education system is crucial, not only for ensuring that the citizenry are well educated, but also for human development and for the maintenance of socially responsive economic and political systems,” reasons also Brenda Modisaotsile (2012:01) in a policy brief from the Africa Institute of South Africa.

The third part of the definition of educational technology “tells us how we do this: by creating, using and managing” facilitating of learning and improving of performance (Hlynka & Jacobsen, 2010). Historically these three tasks did not overlap, but in the 21st century are converging as technologies converge. And fourthly the definition tells us what we work with, viz technological processes and resources. Educators are interested in “creating, adopting and managing new, novel and innovative learning experiences that only become possible because of technological processes and resources,” (Hlynka & Jacobsen, 2010).

This brings us back to the outcome of education; after we put in considerable time and effort and have spent a lot of money on training and skills development. Have our learners gained the right knowledge and insight and has the learning experience improved performance sufficiently to set them up for success during further studies, to maintain efficiency and productivity in the workplace and to cultivate civic-minded responsive citizens? In the SANDF this question has a direct bearing on ±78 000 employees.

Policy makers and education specialists grapple worldwide with the same challenges. But as Fallon says (Economist Intelligence Unit, 2014:01): “The problems in education often seem intractable when faced by a single school, institution, or even a single government. But – with great clarity of mission, and the right information about how great learning outcomes are achieved in other contexts, those problems can begin to seem a little more surmountable.”

My wish is that the arguments and insights in this journal will do just that.

In the article Students need to understand and embrace Project Management Principles to increase their Chances of Success the author investigates the skills needed to succeed in the 21st century and postulates part of a solution to address this question. The changing role of the military and the application and convergence of international humanitarian law and international human rights are put under the spotlight by the author of the article The Need for Human Rights Training in the Military as he reasons for a review of current training and educational programmes in the military.

In the article The Impact of Digitally Mediated Communications on the Academic Integrity of Online Learning and Assessment the author contemplates how the academic integrity of an online education system can be ensured by means of quality assurance measures, whilst the author of Barriers to Learner Transfer of Learning reports on original research done in the banking sector on the importance for line and HR managers to manage the transfer of the learning process to improve organizational performance.

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The Need for Human Rights Training in the Military

Pieter Brits

ABSTRACT

The end of the Cold War had a fundamental impact on the global security situation. Soon the threat of a global war was replaced by the eruption of a number of smaller conflicts. Being largely of ethnic or religious origin, by far the greater number of these conflicts took place within rather than between states. A number of mechanisms were adopted to cope with the new situation, the most prominent being a renewed focus on peace support operations resulting in a rise in human rights awareness and activism (De Bruijne, 2008:11). This necessitated the military expanding its traditional role to include law enforcement, a domain that once predominantly belonged to other government agencies such as the police services. This change did not escape the attention of the international legal environment. Starting with the Convention on the Rights of the Child in 1989 international law witnessed an increasing convergence between international humanitarian law (IHL) and international human rights law (IHRL) to the point where it is no longer possible to treat them as two separate disciplines, one applying in times of armed conflict and the other in times of peace. While IHL is still considered to be lex specialis in armed conflict, it no longer applies in isolation. It is suggested that the joint application of IHRL in times of armed conflict as well as the utilization of the military in peace management operations during which IHL finds no application at all, necessitates a review of current military training and education.

Keywords: international humanitarian law, international human rights law, expanding role of the military, command responsibility

Introduction

Traditionally IHL and IHRL are two separate branches of law, one dealing with the conduct of parties to an armed conflict and the other with protection against abuse of power (Droege, 2007:310). Accordingly the view was held for years that IHL applies in times of armed conflict, while IHRL applies in times of peace (OHCHR, 2011:5). Accordingly military forces in the training and education of soldiers in the past primarily concentrated on IHL while little or no attention was paid to IHRL.

Modern international law, however, no longer recognizes this view to be accurate (OHCHR, 2011:5; Casla, 2012:4). An upsurge in non-international armed conflicts as well as the recurrence of issues arising from occupation lead to an increasing number of situations where both IHL and IHRL apply. In the words of Droege (2007:311): “In short, these regimes overlap, but as they were not necessarily meant to do so originally, it is necessary to apply them concurrently and to reconcile them.”

The widespread human suffering of the Spanish Civil War (1936 – 1939) and World War II (1939 – 1945) again necessitated an update of IHL to comply with the changing character of warfare. The decision was taken to start afresh and four new Geneva Conventions were drawn up: the Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (First Geneva Convention of 1949), the Geneva Convention for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of the Armed Forces at Sea (Second Geneva Convention of 1949), the Geneva Convention relative to the Treatment of Prisoners of War (Third Geneva Convention of 1949) and the Geneva Convention Relative to the Protection of Civilian Persons in Time of War (Fourth Geneva Convention of 1949).

Owing to a change in the nature of conflict, from full-scale international wars to more localized armed conflicts that may involve fewer combatants the Geneva Conventions were supplemented by two Additional Protocols: the Protocol relating to the Protection of Victims of International Armed Conflicts (Protocol I of 1977) and the Protocol relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II of 1977) (OHCHR, 1991:3). In 2005 a third Protocol was adopted to provide for the Adoption of an Additional Distinctive Emblem (Protocol III of 2005).
The birth of contemporary human rights can be traced back to the Age of Enlightenment as characterised in the works of John Locke, Charles Montesquieu and Jean Jacques Rousseau (Doswald-Beck & Viet, 1993). The first human rights were contained in the Virginia Bill of Rights of 1776 followed by the French Declaration of the Rights of Man and the Citizen in 1789 (Kolb, 1998). However, IHRL only became part of international law after World War II with the establishment of the United Nations and the acceptance of the Universal Declaration of Human Rights in 1948 (Kretzmer, 2009:9). From history it may be seen that IHRL has its roots in the relations between States, its development constantly being influenced by the changing nature of warfare. By its very nature it is international law (Droege, 2007:313). IHRL on the other hand has its origins in domestic law and concerns the organisation of State power vis-à-vis the individual (Kolb, 1998).

**Legal framework**

IHL can be defined as “a set of international rules, established by treaty or custom, which are specifically intended to solve humanitarian problems arising from international or non-international armed conflicts” (ICRC, 2003:1). It contains rules which seek to limit the death and destruction caused by armed conflict (ICRC, 2004:1). This is done in two ways: by protecting persons who are not or are no longer participating in hostilities and by restricting the means and methods of warfare. It is also known as the law of war or the law of armed conflict.

IHRL can be defined as “a set of international rules, established by treaty or custom, on the basis of which individuals or groups can expect and/or claim certain behaviour or benefits from governments” (ICRC, 2003:1). Human rights are fundamental rights and freedoms inherent in all persons across cultural or other borders, simply by virtue of their being human. They are universal in nature and based on non-discrimination and equality before the law. IHRL obliges governments to act or refrain from acting in specific ways to promote and protect certain fundamental human rights and freedoms (OHCHR, 1996-2013:1).


Historically the two disciplines developed separately. The acceptance of the CRC in 1989 marked the introduction of a new era, one of which the military practitioner should take note. For the first time a treaty that traditionally would have belonged to IHRL also contains provisions of IHL. Other examples of this trend include the CRC’s First Optional Protocol on the Involvement of Children in Armed Conflicts (2000) as well as the Rome Statute of the International Criminal Court (2000). Currently the world awaits the ratification of a Third Optional Protocol of the CRC on a Communications Procedure which will allow children to submit complaints regarding specific violations of both their IHRL and IHL rights to the UN Committee on the Rights of the Child.

**Scope of application**

The application of IHL is primarily limited to situations of armed conflict. It is important to distinguish between international armed conflicts and non-international armed conflicts in order to determine the applicable international humanitarian instruments and customary rules.

In the event of conflict between two States, or a so-called international armed conflict, it is normally fairly easy to determine the applicability of IHL. Common Article 2 to the four Geneva Conventions stipulates that the Conventions shall apply:

“to all cases of declared war or any other armed conflict which may arise between two or more of the High Contracting Parties, even if the state of war is not recognized by one of them.”

It is thus clear that any use of armed force by one State against another can be regarded as an armed conflict that will trigger the application of IHL (Hampson, 2008:553). The full scope of IHL, including the four Geneva Conventions as well as Additional Protocol I, will apply to an international armed conflict.

More difficult is the determination of the existence of a non-international armed conflict. In the first place there is no set definition of the term “armed conflict”. Accepting the presence of some degree of violence it has to be decided when the threshold is crossed between mere internal unrest and armed conflict. Thirdly, there is the challenge to establish the facts accurately and objectively. States are normally reluctant to admit that what is occurring in their territory is an armed conflict, either because they do not want to attract international attention or due to the concern that such an admission will confer some type of legitimacy on a non-state armed group (Hampson, 2008:554 – 556).

Also known as internal conflicts, non-international armed conflicts are conflicts between States and non-state armed groups, or between two or more non-state armed groups within a State’s area. Typical examples include civil wars, internal armed conflicts that spill over into other States or internal conflicts in which third States or multinational task forces intervene.
alongside the government (Hathaway et al, 2012:1889).

The most important description of the term “armed conflict” to date was provided by the International Tribunal for the Former Yugoslavia in the case of Prosecutor v Tadic:

“we find that an armed conflict exists whenever there is a resort to armed force between States or protracted armed violence between governmental authorities and organized armed groups or between such groups within a State. International humanitarian law applies from the initiation of such armed conflicts and extends beyond the cessation of hostilities until a general conclusion of peace is reached; or, in the case of internal conflicts, a peaceful settlement is achieved. Until that moment, international humanitarian law continues to apply in the whole territory of the warring States or, in the case of internal conflicts, the whole territory under the control of a party, whether or not actual combat takes place there.”

The tribunal identified two requirements for armed conflict: the existence of organized armed groups and fighting of some intensity. It also gave an indication of the duration of application (ITFY: Prosecutor v Tadic, 1995, par. 70). The jury is still out on what exactly constitutes a sufficiently organized armed group and sufficient intensity of fighting (Hathaway, 2012:1890).

Except for common Article 3 to the Geneva Conventions, 1949, and the few rules of Additional Protocol II there are not many relevant IHL treaty rules applicable to noninternational armed conflicts (Lubell, 2005:744).

Common Article 3 which has been called a mini convention within the Conventions marked a breakthrough as for the first time non-international conflicts were covered. It requires humane treatment for all persons in enemy hands, without distinction. It specifically prohibits murder, mutilation, torture, cruel, humiliating and degrading treatment, the taking of hostages and unfair trial. It requires that the wounded, sick and shipwrecked be collected and cared for. It grants the ICRC the right to offer its services to the parties to the conflict. It calls on the parties to the conflict to bring all or parts of the Geneva Conventions into force through so-called special agreements. The fact that most armed conflicts today are non-international in nature highlights the importance of Article 3.

The limited number of IHL treaty provisions applicable to noninternational armed conflicts underscores the importance of customary humanitarian law. While treaties normally only apply to the States that have ratified them, customary law binds all parties to a conflict irrespective of formal adherence. Secondly, State practice goes beyond what States have accepted at diplomatic conferences. While common Article 3 and Additional Protocol II to the Geneva Conventions only reflect the most rudimentary rules, most States agree that the essence of customary rules on the conduct of hostilities applies equally to all armed conflicts, whether international or non-international. Lastly, customary law can assist in the interpretation of treaty law (Henckaerts & Doswald-Beck, 2005:xvi; Henckaerts, 2005:177).

Derived from general State practice accepted as law, customary international law is by definition a body of rules that can be inferred from various sources, including official accounts of military operations, official documents including military manuals, national legislation and case law (ICRC, 2005:1). In 1995 the ICRC tasked two members of its legal division to codify all available customary humanitarian rules. This resulted in a publication containing no less than 161 customary humanitarian rules applicable to armed conflict. The publication not only simplifies the military practitioner’s task but also serves as an invaluable source of information on non-international conflicts.

While IHL only applies to armed conflict, human rights law applies in both peace and war. (Orakhelashvili, 2008:62). Initially in 1996 the International Court of Justice (ICJ) in the Advisory Opinion on Nuclear Weapons, with reference to the human rights granted in the ICCPR, stated that they do not cease in times of war, except if derogated from (ICJ: Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, 1996, par. 25).

In 2004 in the Wall case the ICJ confirmed “that the protection offered by human rights conventions does not cease in case of armed conflict” except if derogated from. With regard to the relationship between IHL and IHRL, the Court distinguished three possible situations: “some rights may be exclusively matters of international humanitarian law; others may be exclusively matters of human rights law; yet others may be matters of both these branches of international law” (ICJ: Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory, 2004, par. 106).

This approach of parallel application was confirmed by the Court in 2005 in the Congo-Uganda case (ICJ: Case Concerning the Armed Activities on the Territory of the Congo, 2005, par. 216; Orakhelashvili, 2008:163). The case, in which the Congo claimed widespread and serious human rights and humanitarian law violations by occupying Ugandan forces, provides an excellent example of the fact that one incident can simultaneously lead to both IHL and IHRL violations.

It is important to realize that although being displaced by IHL, IHRL does not totally disappear in times of armed conflict. There can be times when it may directly apply to situations of armed conflict (Lubell, 2005:738). According to Heintze (2004:793) “when examining which duties are incumbent on a State in times of armed conflict, it is not possible to avoid taking international human rights law into consideration”.

The joint application of IHL and IHRL to armed conflict: challenges

As could be conceived the joint application of IHRL and IHL in situations of armed conflict raises multiple challenges (Orakhelashvili, 2008:161; Lubell, 2005:737, Nairn, 2012:1). Starting with non-international armed conflicts, there are the challenges around the extraterritorial application of IHRL especially by peacekeeping missions, the implementation mechanisms and the two different discourses.

Non-international armed conflicts

The scope of protection provided by IHL differs sharply between international and non-international armed conflicts. The only protection for participants in non-international
armed conflicts are the minimum standards provided for in common Article 3 of the Geneva Conventions, 1949.

These standards include humane treatment for all persons in enemy hands; that the wounded, sick and shipwrecked be collected and cared for; and that humanitarian organisations like the ICRC are allowed to offer their services. The treaty rules on non-international armed conflicts make no provision for the legal status of combatants (Lubell, 2005:748). While it is clear that civilians may not be attacked (Additional Protocol II to the Geneva Conventions, 1977) it is particularly difficult to classify members of non-state armed groups when deciding whether they can be lawfully targeted.

There seem to be three possibilities: that they are classified as non-civilians who may be targeted at all times like participants in international armed conflicts; as civilians that have lost their protection due to direct participation in the conflict and that they can be targeted for the duration of the conflict; or as civilians that only lose their protection at certain times in the conflict, for instance during direct participation (Lubell, 2005:748). While the first two approaches are highly controversial, it is suggested that an attempt to detain must first be made before using lethal force, illustrating that IHRL can be used to fill the gaps left by IHL (Lubell, 2005:750).

**Extraterritorial application of IHRL**

While IHL applies universally, the extraterritorial application of IHRL remains exceptional and will have to be justified in terms of general international law (Milanovic, 2012:127, Lubell, 2005:739, Nairn, 2012:11). European case law stretching from Loizidou (ECHR: Loizidou v Turkey: Preliminary Objections, 1995, paras 62 – 64) through Bankovic (ECHR: Bankovic and Others v Belgium and Others, 2001, par. 80) to the Al-Skeini case (ECHR: Al-Skeini and Others v United Kingdom, 2011, par 137) provides strong support for the contention that human rights obligations can extend extraterritorially.

Where it was initially done on the strict basis of territorial jurisdiction the recent case of Al-Skeini pushes the boundaries to include personal jurisdiction by emphasizing the control that State agents exercise over the individual (Ryngaert, 2013:58; Miko, 2013:77; Milanovic, 2012:130). Shraga quite correctly contends that the "trigger point for the application of human rights obligations in military operations of States or the United Nations is the effective control of either operation over a territory or its population" (Shraga, 2013:2). In treaty law IHRL also requires states to take all measures necessary to ensure their human rights obligations in respect of all individuals within its territory and subject to its jurisdiction (ICCPR, 1966, Art. 2(1); ECHR, 1950, Art. 1).

**The challenges of peacekeeping**

Shraga’s reference to operations conducted by the United Nations implies the application of IHRL in areas under the control of peacekeeping missions. Peacekeeping is more difficult than warfare. Soldiers trained to defeat enemy combatants find themselves confronted with having to police human rights abuses committed by militias and criminals. What would normally have been a task for law enforcement officers suddenly becomes the responsibility of an outside military force. In the words of the Great Lakes Forum on the situation in the DRC: “military actors must first be given a new set of tools. It is impossible to preserve human rights and stop criminal activity with the standard tools of law of the land warfare” (Great Lakes Policy Forum, 2010:2). The implication is clear. Soldiers deployed in peacekeeping operations should be just as well versed in human rights law as in IHL.

**Implementation mechanisms**

Human rights has a well-developed reporting system in terms of which State parties are expected to submit regular reports to the nine treaty bodies on their compliance with treaty obligations. The treaty bodies meet primarily in Geneva, and are serviced by the Office of the UN High Commissioner for Human Rights (OHCHR). In addition, there is the CAT Subcommittee on the Prevention of Torture (SPT), which is mandated to carry out state visits to detention facilities under the Optional Protocol to the Convention Against Torture, and Other Cruel, Inhuman or Degrading Treatment or Punishment (OHCHR, 1996 – 2012:1).

Partly due to the fact that it applies only to armed conflicts humanitarian law is characterized by underdeveloped implementation mechanisms that have been described as fairly ineffective (Heintze, 2004:798). Some mechanisms, for example protecting powers and the International Humanitarian Fact-finding Commission never function because of the lack of political will, while others such as the obligation of third states to ensure respect of IHL by belligerents and the United Nations collective security and human rights mechanisms are insufficient owing to a lack of consistent and impartial enforcement of IHL (Sassoli, 2007:52). In the end IHL seems to be largely dependent on the ICRC and individual criminal responsibility for its effective enforcement.

It comes as no surprise that owing to the weakness of its own mechanisms IHL often relies on IHRL mechanisms for effective implementation (Heintze, 2004:798). However, human rights bodies established by treaty are restricted in their mandate, which results in little or no direct reference to IHL. Despite being more easily able to refer directly to IHL violations, reports by human rights bodies established through the UN Charter, such as those compiled by the Special Rapporteurs on Iraq, the former Yugoslavia and Sudan lack consistency, which may be ascribed not only to the difference in language between IHL and IHRL, but also to a lack of the necessary expertise to evaluate military operations (Lubell, 2005:743).

Despite being better developed one should not be misled into believing that the IHRL has a better or more effective implementation system than IHL. In a recent report the United Nations High Commissioner for Human Rights revealed that currently only 16% of State parties report on time and even with this low compliance rate, four of the nine treaty bodies that experience significant backlogs in the consideration of reports (OHCHR, 2012:9).

This leaves individual criminal liability as one of the main implementation mechanisms of IHL. Just like the reporting system which can be used to implement both IHRL and IHL, an individual can be held criminally liable for both IHL and IHRL violations.

As the law in force in armed conflict IHL will rely much more
strongly on criminal sanction than IHRL, which applies primarily, although not exclusively, during times when there is more order in the state system. IHRL, on the other hand, depends much less on the criminalisation of its provisions for implementation. Indeed only three IHRL treaties contain criminal sanction, which should not, however, be regarded as a shortcoming.

The Rome treaty enables the ICC to prosecute any individual who commits genocide, war crimes or crimes against humanity. While the first two offences require an element of armed conflict, it is important to note that under customary law crimes against humanity do not require any connection to armed conflict (ITFY: Prosecutor v Tadic, 1995, par. 141). It is formulated widely enough to accommodate most violations of the provisions found in the IHRL treaties (Rome Statute of the International Criminal Court, 2002, Art. 7). A perfect illustration is the current changes by the ICC against Kenya's president and his deputy. They are charged with crimes against humanity for their alleged roles in orchestrating ethnic violence after Kenya's 2007 presidential election. More than 1,100 people died (All Africa, 2013:1).

Criminal liability for both IHL and IHRL violations does not stop with the individual offender. As illustrated by the Convention on the Suppression and Punishment of the Crime of Apartheid (1976) and confirmed by the decisions of the International Tribunals for Yugoslavia and Rwanda, the concept command responsibility is no longer limited to international war crimes but includes other international crimes (Martin et al, 2006:114). Superiors, both military and civilian, who knew or ought to have known about violations can be held liable irrespective of failure either to prevent it or to punish perpetrators (OHCHR, 2011:80; Optional Protocol I additional to the Geneva Conventions, 1970, Art. 86; Gutierrez Posse, 2006:70; Ronen, 2010:313).

Two different discourses

Another challenge is the reluctance of military personnel to accept human rights teachings. But just as military personnel might find a discussion of the right to life slightly vexing, human rights professionals are equally perplexed by concepts like military necessity or military objective. According to Lubell (2005:744) it is “like speaking Dutch to the Chinese or vice versa”. But in the problem lies the solution. One way to successfully explain human rights to military personnel or IHL to human rights professionals can be to describe them as different languages, each with its own words and terms and, even more importantly, each with its own different concepts and approach to situations (Lubell, 2005:745).

When looking at it from this perspective one may find that there are concepts like the “prohibition of torture” and “judicial guarantees” to which both languages attach more or less the same meaning. Other concepts like the “right to life” and “proportionality” may have totally different meanings in each language. There are even concepts like “military objective” that exist only in one language and are not easily translatable, and must be taught in their original context (Lubell, 2005:745).

While IHL and IHRL may differ in origin and application, both bodies of law share one objective: the protection and safeguarding of individuals. Despite the challenges both military

and human rights practitioners have the duty to learn the language of the other in order to harmonise the application of the rules in joint situations to the advantage of mankind. The two bodies of law should be harnessed in a nourishing rather than in a destructive way.

Conclusion

The trend that was set in motion with the convergence of IHL and IHRL rules in the same Conventions, starting with the Convention on the Rights of the Child in 1989, is merely symptomatic of a bigger phenomenon, to wit the changing role of the military. The role of the military in at least the last three decades has widened from the management of violence to include the management of peace (Burk, 2002:20).

Military forces are increasingly required to perform and support non-military functions, such as humanitarian aid, natural disaster aid, border guarding, combating terrorism and transnational crimes and intervention to restore public order (Lambert, 2009:52). This role expansion that resulted largely from the changing nature of war also brought the military into closer contact and competition with other professions when it performs its tasks (Burk, 2002:20). Deployment during major events (soccer world cup), in civil unrest situations (service delivery protests), in elections, to prevent piracy along the East Coast of Africa and poaching in the Kruger National Park already form part of the activities performed by the South African National Defence Force (SANDF).

Without detracting from the progress already made it is suggested that the changing global security environment not only necessitates a greater awareness of human rights in general, but also compels the military to enlarge its focus on human rights training and education.

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NOTES

1 Preference is given to the term “law of armed conflict”, since the adoption of Additional Protocol II of 1977 extended the protection of IHL from traditional “war” victims also to include victims of non-international conflicts.

2 Articles 38 and 39 of the Convention specifically provide for children affected by armed conflict.

3 On 12 October 2013 the Protocol was signed by 44 State parties and ratified by eight, with two further ratifications awaited to come into force. Although South Africa has to date not signed the Third Optional Protocol it has ratified both the Convention itself as well as the First and Second Optional Protocols.

4 Despite the fact that Common Article 3 of the Geneva Conventions expressly states that the application of IHL to non-international armed conflicts shall not affect the legal status of parties.

5 As explained by Dr. Jacob Wallenberger, President of the ICRC in the foreword to Customary International Humanitarian Law Volume I Rules, it is a work written by Jean-Marie Henckaerts and Louise Doswald-Beck on the instruction of the ICRC.


7 It specifically prohibits murder, mutilation, torture, cruel, humiliating and degrading treatment, the taking of hostages and unfair trial.

8 Art 4 of the Convention Against Torture requires States to ensure that all acts related to torture are made offences under its criminal law, while Art. 4 of the International Convention for the Protection of all Persons from Enforced Disappearance requires the same with regard to enforced disappearance. Art. 4(2) of the Optional Protocol to the Convention on the Rights of the Child and the involvement of children in armed conflict requires States to do everything they can to prevent individuals under the age of 18 from directly taking part in hostilities, while Arts. 3 and 7 of The Optional Protocol to the Convention on the Rights of the Child on the sale of children, child prostitution and child pornography draw special attention to the criminalization of these serious violations of children’s rights and emphasizes the importance of fostering increased public awareness and international cooperation in efforts to combat them.

Students need to understand and embrace Project Management Principles to increase their Chances of Success

Johann de Waal

ABSTRACT

Derived from research on the skills and competencies needed to succeed as a student and in the workplace, it becomes evident that apart from key subject content knowledge students need an array of life or self-management skills in order to be successful in college or in the workplace. It also becomes obvious that these skills should not only be obtained once a student arrives at a tertiary institution, but must already be cultivated during high school and even as early as during primary school training. The life or self-management skills required to be mastered show a striking similarity to those skills used in project management. Qualities such as higher order thinking, communication, accessing, analysing and creating information, key cognitive strategies (formulate, investigate, integrate, think analytically and logically, planning time carefully to complete tasks) are some of the commonalities. Thus applying project management principles can hone or enhance life or self-management skills and improve the chances of success at college and on the job.

Keywords: life and self-management skills, project management process, objectives, activities scheduling and control

Introduction

Some 36% of all students who started studying three- and four-year degrees in 2005 at South Africa’s universities, excluding Unisa, had dropped out by 2010, according to data released by the Council on Higher Education in 2013 (John, 2013). In the meantime it was also revealed that almost half (47%) of the pupils who should have written matric last year had already dropped out of the system at the end of Grade 10 (Rademeyer, 2014). These statistics leave a big question mark about what skills students need in the 21st century to make a success of their future.

According to Nicolene Murdoch, executive director for teaching, learning and quality at Monash South Africa and president of the Southern African Association for Institutional Research (SAAIR), the reasons for these low rates in higher education include financial constraints, lack of academic preparedness and not getting enough support from their institutions (Mtsahl, 2013).

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Student comments vary from “no one ‘babies’ you” to “there are student advisers, an internal network and tutorial sessions, but it still feels like you’ve been thrown in the deep end” (John, 2013). So, setting aside financial and social constraints, if student advisers, internal networks and tutorial sessions are available at training institutions, the question arises: is enough done to make students ‘college ready’, is this timeously done and does it really equip students sufficiently to set them up for success?

This theoretical paper endeavours to review literature in general on how to prepare students for future studies and workplace demands and then to evaluate critically the emphasis placed by present research on the importance of students understanding basic project management principles in order to master sufficient self-managing skills to be successful in studies and later work life. The discussion of the results will be from the general to the specific and will attempt to motivate to what extent an understanding and application of project management principles will enhance and hone the 21st century skills students need to achieve study and work life success.

Skills needed to succeed in the 21st century world

The 21st century dawned at the beginning of the Digital Age. New technologies and tools multiply daily and the life, career and learning skills needed for survival change in equal measure. According to Anderson and Gantz (2013:3), in a paper written to help educators provide students with the skills and tools they need, International Data Corporation (IDC) research suggests “that skills and competencies that support well-developed, civically competent students are the same skills that will be widely in demand by employers in 2020 and beyond”. Their analysis uncovered an overwhelmingly desirable subset of soft skills focusing on communication, integration and presentation (CIP) skills, and indicated the following:

- High school students require ‘job readiness’ and not ‘job training’ for success.
- The value of proficiency in common, frequently required skills is increasing.
- The focus on real-world tasks, e.g. CIP capabilities, fosters both a well-rounded student and a student whose skills will be in demand in our future economy.

In a paper published by the Science, Technology, Engineering and Mathematics (STEM) Education Coalition, a United States (US) body with the mission to inform federal and state policymakers on the critical role that science, technology, engineering and maths education plays in US competitiveness and future economic prosperity, Sue Z. Beers (2012) states that numerous studies and reports have emerged over the past decade that seek to identify the life, career and learning skills that define the skills needed for success in the 21st century world. Common skills across most of the studies are included in Table 1.

David T. Conley (2008) reported on an in-depth study by the Educational Policy Improvement Centre with support from the Bill and Melinda Gates Foundation of 38 exemplary high schools to find out how these schools prepared their students for college. According to him preparing students for college has become a higher priority in many schools as parents, business leaders and politicians emphasise the importance of a
highly educated workforce and citizenry.

From the findings of the study a comprehensive set of principles, as set out in Table 2, based on four distinct dimensions of college readiness, was developed that schools could follow if they wished to increase the proportion of students ready for post-secondary education (Conley, 2008).

In retrospect: From research on the skills and competencies needed to succeed as a student and in the workplace, it becomes evident that apart from key subject content knowledge, students need an array of life or self-management skills in order to be successful. It also becomes obvious that these skills should not only be obtained once a student arrives at a tertiary institution, but must already be cultivated during high school and even as early as during primary school training.

**Life skills and project management for students**

The life or self-management skills required to be mastered in order to be successful in the 21st century world show striking similarities with those skills required to be used in project management. Qualities such as higher order thinking, communication, accessing, analysing and creating information, key cognitive strategies (formulate, investigate, integrate, think analytically and logically) and planning time carefully to complete tasks are some of the commonalities.

Conley (2008) mentioned that during research at high performance high schools they "encountered numerous strategies..."
and programmes designed to help students improve their study skills; collect, organise and retain factual information; take better notes; manage their time more effectively and efficiently; work in teams; and reflect on the quality of their work”. What then is the best way to equip students with an appropriate set of life skills to face the demands of the 21st century?

Beers (2012:2-4) emphasised the need to ground 21st century skills in core content, and especially in an interdisciplinary fashion by, amongst other design principles, developing life and career skills by creating opportunities for students to become self-directed learners who take responsibility for their own learning and who learn how to work effectively with others. She specifically mentioned the managing of projects as a way to achieve self-managing skills. Thus applying project management principles is a way to hone or enhance the life or self-management skills needed by students to succeed.

The author of this article therefore endeavours to propose an almost oversimplified project management process, as reflected in Figure 1, to be at the core of achieving self-management skills. The basic processes of this project management process are having to determine the main objectives to be achieved (A); identifying all the related activities, per objective, to be executed (B), then structuring these activities that must be executed [normally in a plan] (C), and then coordinating and controlling the effort (D).

This simplified project management process is similar to Stephen Covey’s law of the farm (1993:161) in that you have to sow the seed and nurture it before you can reap. This is non-negotiable; you cannot bypass it, you have to do it in a specific order!

Additionally, however, the steps of the law of the farm have to be analysed by identifying the further activities that must be executed to arrive at a result. This involves activities such as: deciding what to sow, obtaining the seed, preparing the ground by first ploughing and fertilising it, then sowing it as prescribed, regularly watering it, weeding it, adding fertiliser, waiting for the crop to grow and, when the time is right, reaping it with the right equipment. These are essential extra steps, which constitute a logical process that must be followed and which are grouped in the three main steps.

The same is true for project management. It is a logical process that is easy to master because it is already imbedded within the life skill portfolio of humans. And if developed, it can better the skills needed to minimise the chaos in life, or at least organise the chaos so that it can be managed and consequently abundant time is provided to study more effectively. “So why don’t we teach our kids how to project manage?” asks Joseph Bachana (2010), president and founder of Database Publishing Consultants Incorporated (DPCI).

“The basic principles of project management aren’t particularly difficult – in fact, far less complex than algebra or geometry or grammar or even spelling. Project management is accessible to children because it allows people to organize themselves with shared rules of play in the same manner children already know how to do when they play games,” (Bachana, 2010).

In order to illustrate the simplified project management process, steps A-D will be populated in the same way as the law of the farm three steps in the text to follow. The ‘populating’ approach is simple once the basic concepts are understood. The current tools and techniques that are linked to project management are easy to grasp and are brought into context once project management is formally studied. Compare this with the formal definition of project management: “A project is a planned temporary endeavour undertaken to create a unique product or service or other complete and definite outcome (deliverable) within a limited time scale and budget” (PMBOK Guide, 2008). In order to do that, a certain set of skills are required.

With the simplified project management process in mind, the certain skills are logically present when executing a daily routine and are certainly identified as life skills needed for students to succeed in the 21st century world (Conley, 2008; Beers, 2012:1-6; and Anderson & Gantz, 2013:3). These will be described and linked briefly to illustrate the relationship with project management: analytical, process, research, discipline, innovation, communication, relationship and management.

- **Analytical** – using a logical method of thinking about something in order to understand it, especially by looking at all the parts separately (Oxford Advanced Learner’s Dictionary, 2010) - congruence with the key cognitive strategies Table 2.
- **Process** – a series of things that are done in order to achieve a particular result (Oxford Advanced Learner’s Dictionary, 2010); a series of stages in manufacture or some other operation (systems engineering definition inputs transformation output as alternative).
- **Research** – a careful study of a subject, especially in order to discover new facts or information about it (Oxford Advanced Learner’s Dictionary, 2010); it is used to establish or confirm facts, reaffirm the results of previous work, solve new or existing problems, support theorems, or develop new theories - compare with information management in Table 1.
- **Discipline** – the ability to control the way you behave (Oxford Advanced Learner’s Dictionary, 2010). A disciplined

![Table 1](image)

<table>
<thead>
<tr>
<th>Analytical</th>
<th>Process</th>
<th>Research</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using a logical method of thinking about something in order to understand it, especially by looking at all the parts separately.</td>
<td>A series of things that are done in order to achieve a particular result.</td>
<td>A careful study of a subject, especially in order to discover new facts or information about it.</td>
<td>The ability to control the way you behave.</td>
</tr>
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![Figure 1: Simplified project management process](image)
person is one that has established a goal and is willing to achieve that goal at the expense of his or her individuality - compare with collaboration in Table 1.

- **Innovation** – the introduction of new things, ideas or ways of doing something (Oxford Advanced Learner’s Dictionary, 2010). Congruence with creativity and innovation in Table 1.

- **Communication** - concerned with the creation, transmission, interpretation and use of information (Armstrong, 1979:316). Communication is the activity of conveying information through the exchange of thoughts, messages, or information, as by speech, visuals, signals, written, or behaviour. It is the meaningful exchange of information between two or more living creatures (Wikipedia, 2014) - similar to the description in Table 1.

- **Relationship** - the way in which two or more things are connected (Oxford Advanced Learner’s Dictionary, 2010) - closely related to cultural awareness in Table 1.

- **Management** - certain qualities and abilities which can be either inherited or acquired, and which are normally required for and connected with effective management. Management is the integrated process of planning, organising, direction, coordination and control for attaining pre-determined objectives (Military Dictionary). Figure 2 illustrates the simple management process (Nicholas, 2001:20) - compare with Table 2, key self-management skills.

Stephen Covey (1993:29) suggests that real character and skill development are irrevocably related to natural laws and governing principles; when we observe these, we gain the strength to break with the past, to overcome old habits, to change paradigms, and to achieve primary greatness and interpersonal effectiveness. There are certainly more life skills that can be linked with the managing elements of projects, but the above-mentioned skills were mentioned to illustrate the natural inclination or instinct to ‘live’ project management, naturally.

In retrospect: Project management is suggested as a tool or vehicle for students to manage time and own activities effectively, a 21st century life skill as stated in Table 2 under key self-management skills (Conley, 2008). By simplifying, understanding and applying the principles and processes of project management the effective use of time can be greatly improved. As experience grows, managing time and tasks become second nature thus nurturing the required 21st century skills that will consequently expand the chances of college and workplace success amongst students.

**Key concepts required to understand the simplified project management process for students**

As already stated many activities that happen in our everyday lives are, in reality, projects. The problem is that most people do not realise that project management concepts are not hard to understand: project management can be simplified and can be fun! “Children may not be quite ready to tackle your multi-million dollar project, but I assure you that they can – and do – manage projects every day,” says Gary Nelson on the Gazza’s Corner Blog (2013).

The simplified project management process systematically identifies the objectives of the day, analyses the objectives and lists all the related activities that must be done to achieve it, logically structures (schedules) the activities (project plan) executes and coordinates the effort and then controls the execution. It is important to understand the specific concepts/elements of the project management process before the logical flow of the process is explained.

The elements that are addressed include objectives, activities, resources, scheduling and control. These elements are “glued” together by people using the skills discussed up to now. It is constructed in a specific configuration to achieve the specific end result. It is important to remember that the big difference between teaching project management principles to children and adults is scale and language. For children the same elements for the project management process above can, for example, be described with terms such as initiation, planning, execution, closeout (Nelson, 2013).

**Objectives**

Simply stated by Clemen and Reilly (2001:22) an objective is “a specific thing you want to achieve”. The Military Dictionary (249) reflects four different meanings to the word, describing objectives in different circumstances, namely physical object of the action taken, intermediate goals identified as components of the aim, tactical area or part thereof or an element which is the indicated or chosen target and the aim of a plan, the ideal which is desired. However, to enlighten the military definition(s) it must be read with the definition of an aim as “direction of endeavour, design, purpose [or] intention” (Military Dictionary, 10).

Listing the qualities of an objective enhances the understanding of the definition. An objective must be acceptable - consistent with personal preferences; flexible - adaptable to unforeseen or extraordinary changes in circumstances; measurable - parameters that clearly state when it is achieved; motivating - set high enough to motivate; suitable – suited to the broad aim, a step towards the attainment of goals; understandable – clear, meaningful and unambiguous and lastly achievable – possible to execute and attain (Pearce & Robinson, 2000:244). What normally happens is that an objective consists of intermediate objectives that must be achieved first, before the main objective is accomplished.

For example: A main objective for a student might be: “I want to master mathematics”. To master mathematics one first has to pass all tests with a 75% pass rate, attain 80% for all the assignments and write a report achieving a mark of 70%. Considering the qualities stipulated above, this objective is the wanted thing, acceptable, flexible, measurable motivating, suitable and understandable. This can only be achieved if the right activities are identified and then executed.

John Schwechel (2005) suggested a self-explanatory methodology/process/activities of determining an objective, which can be followed as depicted in Figure 3.

**Activities**

The Oxford Advanced Learner’s Dictionary (2010) describes an activity as a thing that you do for interest or pleasure, or in order to achieve a particular aim. The meaning can be expanded further with movement, motion, operation, function, work
Figure 2: The functions of management

Figure 3: Determining the objectives
In the project management world, activities are organised in network diagrams that describe a project in terms of sequences of activities and events. An activity is a work task; something to be done. It can be a unit of work at any level of a work breakdown structure (WBS) – a work package, a cluster of work packages, or an individual job smaller that a work package, depending on the desired detail. An activity is something that requires time and utilises resources (Nicholas, 2001:194).

However, the terms activity, task, work and job are often used interchangeably (Burke, 2011:143). For clarity in this text an activity is the smallest piece of work that must be done and confirmed from the above-mentioned definitions. The work that is to be done is the primary focus; it is eventually captured in a WBS. The purpose of the WBS is merely to define deliverables (objectives) in more detail than indicated in the scope statement, to identify the work involved, divide the work and to allocate it to responsible individuals (Steyn et al, 2012:86).

They continue to say that the WBS is not a schedule of activities; it indicates only what work must be done to provide certain deliverables, and who should do the work; not when the work must be done. If Figure 3 is validated, it is obvious that by determining the objectives certain activities must be done, thus it can be regarded as a high-level WBS.

Analysing activities expands the understanding of an activity; the analysis is the principle that establishes what work is to be done and what needs to be done if the enterprise is to achieve its objectives. The analysis of activities should establish what is and what is not being done, who is doing it, where it is being done and how much is being done (Armstrong, 1979:34). There are, however, a number of aspects pertaining to activities that form part of the activity analysis, namely:

- **Time** - the duration of the activity, how long it will take to start and complete the activity, expressed in minutes, man-hours or whatever time frame is chosen. The scheduling possibilities of the activities.
- **The relationships with other activities** - activities are very seldom self-sufficient and are dependent on other activities. There are three types of activity dependencies: mandatory - one activity must be done before the next can start, discretionary - optional as to which activity can be executed first and external – is a dependency between an activity on a project and another activity that does not form part of the same project (Steyn et al, 2012:107).
- **External influences on an activity** - standards, regulations, processes, risks, responsibility, expected quality, stakeholders, environmental issues, test and evaluation.
- **The required resources and their availability** to execute the activity - resources such as skilled labour, material, equipment, facilities and information. Discussed in detail later in this text.
- **Cost of the activity** expressed in the monetary value of the required resources.

When one realises how many factors have an influence on an independent activity, it is easy to understand why young students especially misjudge the scope of work to be executed. Underestimating the duration of an activity normally causes the delay in execution, thus time slippage.

For example, and by only considering a few elements: You want to study a subject tonight and it will take an estimated three hours to master the twenty pages content. You plan to start at eight o’clock. At eight o’clock you start searching for the textbook, only to realise you’ve lent it to a friend of yours a three hour drive away. You decide to use the Internet to get the material, but your capped data is insufficient to download the text. You urgently phone a friend, living close by (30 minutes’ drive), asking to borrow his/her textbook to make photocopies or use the friend’s Internet to download the text, or try to study together, in which case you hate to do so because once you are together you discuss other things. You decide the best course of action is to go to the Internet café, but you still have to locate where this facility is. You cannot search using your Internet, so the next option is to use the telephone directory, but with the technology available today there is no directory at home. Alternatively you drive to a mall where an Internet Café possibly exists. Once there, you realise that with the hurry you left your flash drive at home. One thing leads to another and it can go on and on and before you realise it your planned three hours is long gone.

There is a method to structure and execute the identified activities that are explained in the PMBOK Guide (2008:129) as seen in Figure 4 that captures the integration between defining the activities (step 2 of the model) and controlling the schedule (step 4 of the model). This iterative process is broadly described as follows:

- **Define activities** – the process of identifying the specifications to be performed to produce the project objectives (deliverables). Compare with key cognitive strategies in Table 2.
- **Sequence activities** – the process of identifying and documenting relationships among project activities. Compare with content, knowledge information in Table 2.
- **Activity resource estimation** – the process of estimating the type and quantities of material, people, equipment, etc to perform each activity. Compare with information management in Table 1.
- **Activity duration estimation** – approximating the number of work periods needed to complete individual activities with estimated resources. Compare with information management in Table 1.
- **Schedule development** - the process of analysing activity sequences, durations, resource requirements and schedule constraints to create the project schedule.
- **Control schedule** – the process of monitoring the status of the project to update project progress and manage changes to the schedule.

Although the processes are presented here as discrete components with well-defined interfaces, in practice they can overlap and interact in ways not detailed here (PMBOK Guide, 2008:129). However, these overlaps are present in the simple project management process.

**Resources**

Judged by several definitions there are different perspectives on the concept of resources. The Advanced Oxford Learner’s Dictionary (2010) defines resource as the supply of something...
a country, an organisation or a person has and can use. From a project management point of view Burke (2011: 190) defines a resource as the machine or person that will perform the scope of work. The PMBOK Guide (2008:141) states that activity resources are material, people, equipment, facilities or supplies. Typically resources are materials, services, staff or other assets that are transformed to produce benefit and in the process may be consumed or made unavailable.

This text regards resources holistically as skilled labour, information, material, equipment and facilities. The pinnacle or ultimate resource is the skilled person. In the case of project management all the other resources are absolutely useless unless they are needed and used by skilled humans. There is, however, interdependency between resources – a person cannot become skilled without information informing him/her of how to apply material with equipment within a specially created facility. Note that not all of the resources have to be present at any given time.

It is thus very important, besides the duration, also to define an activity in terms of the different resources required to achieve an end. Judged by the three main characteristics, namely utility, limited availability and potential for depletion or consumption, the focus should be on the availability of the resource, especially if the resource has to be at a specific place at the right time in the correct quantity.

For example: When sitting down to study there must be information (knowledge/skill of how to study), study material (captured in a textbook), pencil, a chair, table, lamp (equipment), and a room (facility). All of it must be at the right place at the right time in sufficient quantity and scheduled to fulfill its task.

**Scheduling**

It is also necessary to determine what resources should be available at any specific time (Steyn et al, 2012:101). Nicholas (2001:177) states that apart from the WBS analysis the scheduling of work elements is the most important step in planning because it is the basis for allocating resources, estimating costs and tracking project performance. Schedule is the conversion of an action plan into an operating timetable, according to Meredith and Mantel (2006:371) who state that it serves as the basis for monitoring and controlling project activity and, taken together with the plan and budget, is probably the major tool for the management of projects.

To elaborate, there are many scheduling techniques, bar charts, activity lists and network diagrams, of which the simplest and most common used is the GANTT chart (or bar chart) named after the famous management consultant Henry L. Gantt (1861-1919). The bar chart consists of a horizontal scale divided into time units - hours, days, weeks, months – and a vertical scale showing the activities. The advantage of the bar chart, especially for students, is that it gives a clear pictorial model of the project, as can be seen in Figure 5.

*Figure 5* is a very basic bar chart in which the assumption is that all the activities (1-8) will immediately follow one another, and the learner executes all. This is achieved with thorough planning and by working judiciously whilst identifying the work (activity 2) and simultaneously compiling the relevant study material (activity 3) in order as you go along (activity 5) to save time, namely four hours (see Figure 6). Add a resource (skilled labour) – someone cleaning (activity 4) and stockpiling the desk and study environment (activity 6) during the collecting of information stage (activities 2 and 3) another four hours is saved as illustrated in Figure 6. Getting someone to do activities 4 and 6 requires skills: compare life skills cultural awareness, working with others, and communication by effectively conveying your requirement.

The basic approach of all scheduling techniques is to form a network of activity and event relationships that graphically portrays the sequential relations between the activities in the project (Meredith & Mantel, 2006:372). Unfortunately the bar chart cannot truly reflect the mandatory and discretionary relationships between activities and a logical network diagram is therefore essential. With the network diagram it is easy to determine which activities can be rescheduled as pictured in Figure 7.

From the network diagram it is obvious that the two discretionary activities (4 and 6) can be rescheduled and outsourced (done by someone else). Whilst the work is being identified, it is collected and placed in a diagram in the specific chronological order. Three separate activities (2, 3 and 5) can be done simultaneously as experience grows and the overlapping in Figure 7 indicates this.

The identification and mapping of the relationship/interface of the above-mentioned concepts, by following a logical, systematic and iterative process, will streamline the execution of activities in terms of time and cost.

**Control**

As project management is the process and activity of planning, organising, motivating and controlling resources, procedures and protocols to achieve specific goals in scientific or daily problems, the control process is concerned with assessing actual against planned accomplishment, reviewing and verifying the validity of objectives and confirming the continued need for the project. The process is achieved in three phases and executed in four steps as reflected in Figure 8 (Nicholas, 2001:341). This simple control process can be applied every day in all circumstances where something or someone must be controlled.

For example: Bearing Figure 8 in mind, the examination requirement in a specific subject is seventy per cent (70%). All tests are subject to this pass figure (setting the performance standard). The learner’s progress is measured in a written test. If he/she attained fifty-nine per cent (actual performance), this represents a shortfall of eleven per cent when measured against the standard of 70%. If this shortfall is unacceptable, corrective action must be taken. The learner controls this situation and can correct it with more effective study.

The most difficult part is to determine precisely what must be
Figure 4: Structure activities

1. Plan study endeavor
2. Identify the work to be mastered
3. Get all the relevant study-material
4. Prepare study desk
5. Order the study-material portfolio
6. Prepare study environment
7. Refine study schedule
8. Physical study

Figure 5: Example of a GANTT or bar chart
Figure 6: Adjusted schedule bar chart

Figure 7: Logic network diagram
Figure 8: Control cycle

Phase 1
- Set performance standard

Phase 2
- Measure actual performance
- Compare actual performance with standards
  - If deviations are acceptable or if no deviations: Take no corrective action (provide positive reinforcement)
  - If deviations are unacceptable: Take corrective action

Phase 3
- Ensure standards are correct
- Periodic repeat

Figure 9: Populated simplified project management process
achieved and against what standard; once that is clear, it is easy to control the rest of the activity process.

**Populating the simplified project management process**

Basically, these four steps (A-D), in most cases differently named, are present with each project regardless of the scope thereof, and are essential to carry out, as previously explained in Covey’s *law of the farm* (1993:161). These elements were discussed and are combined into one holistic model (see Figure 9) which indicates the relationships and order between them. However, the scope of each activity can change as circumstances change and can be expanded or tailored to suit the situation. The four major activities (steps A-D) are extended/detailed by means of project management sub-processes.

The concepts discussed above and as illustrated by means of Figures 1-9 are now linked to the four steps (A-D) of the simplified project management process. The advantages of this methodology are that the student can develop/tailor/structure, as knowledge progresses, his/her own workable sub-process, and link it to the steps of the model as long as the added sub-process supports the specific step.

Note that the analysis of the activities involves a six-step process (sub-process C), of which each one of the six steps is supported by or embedded within its own sub-process, for example activity sequencing utilises the logic network diagram (Figure 7) and whilst developing the schedule the GANTT charts (Figures 5 & 6) are used.

Also note that there is a definite link between sub-process C with Steps B and D. The activities are defined in terms of the objectives and the whole process is controlled, based on the control schedule as developed during sub-process C step 6.

In retrospect: The simplified project management process consists of elements such as objectives with related activities that must be scheduled to be executed and controlled, and requires everyday life skills that form the basis for skills needed in the 21st century world. In its simplified form project management can even be taught to children in order to equip them with the necessary skills to succeed in life: heed scope and language.

**Discussion of the simplified project management process in relation to study success**

Conley (2008) summarised the key self-management skills students need to succeed in life as being able to *keep track of massive amounts of information and to organise themselves to meet competing deadlines and priorities, plan their time carefully to complete these tasks, be able to study independently and in informal and formal study groups and know when to seek help from academic support services, and when to cut their losses and drop a course*. As Beers (2012:2-4) emphasised, the need is to ground 21st century skills in core content, and specifically the managing of projects as a way to achieve self-managing skills. The author of this article attempts to reason the extent to which an understanding and application of project management principles will enhance and hone the 21st century skills students need to achieve study and work life success.

By studying project management using the four steps (A – D) as set out in Figures 1 - 9 as a basis, students can easily relate the well-known and described concepts to each activity; thus expanding the knowledge base and understanding of the subject. Once the knowledge pertaining to step one – A begins to expand one will come into contact with concepts such as environment scan, stakeholder interest, project charter, scope statement, statement of work, project proposal, integrated project teams and project office.

Although the sub-process of systematically identifying the objectives was explained in the text, there is also Schwechel’s (2005) picture of how objectives are identified (Figure 3) and this is added to the simplified project management process (Figure 1) to populate the model which then becomes a detailed picture as reflected in Figure 9. The expanding of the simplified project management process is done by adding a work breakdown structure (WBS) (sub-process B); the activity scheduling sub-process C, followed by the control process sub-process D.

The understanding of project management can, justifiably, be simplified or made more complex to suit the age of students and the context within which the skills and strategies are embedded. Everyone, including children in all grades of school, has managed a project. When a project is completed and the objectives have been achieved, there is usually a feeling of accomplishment and pride, even though there may have been many challenges to overcome before the project was completed. That sense of accomplishment often drives the desire to begin another project.

According to Vaughn Smith (2010) from JAVR Smith Project Management Services, schools often establish work for children but fail to provide project management direction for children. Children will understand concepts much better when simple techniques are emphasised. Smith reasons that as children get older and their school projects more complex, there is a natural tendency to improve their project work. However, formal training in scope, schedule and quality controls can really help them deliver quality projects on time. As the student reaches higher educational institutions such as the college or university, where projects are a frequent obligation, such project work, with proper training and experience, will be executed in a timely fashion with adequate quality performance measures.

In retrospect: It becomes evident that apart from key subject content knowledge students need an array of life or self-management skills in order to be successful in college or in the workplace. It also becomes obvious that these skills should not only be obtained once a student arrives at a tertiary institution, but must already be cultivated during high school and even as early as in primary school. The life or self-management skills required to be mastered show a striking similarity with those skills used in project management, so applying project management principles can hone or enhance life or self-management skills and improve the chance of success in college and in the job.

**Conclusion**

Correct principles are like compasses: they are always pointing the way. One such principle that has endured over time is the *law of the farm* (Covey, 1993:161); prepare the ground,
put in the seed, cultivate it, weed it, water it, and then gradually nurture growth and development to full maturity. If we follow this same principle by nurturing project management in our youth by honing skills and competencies that support well-developed and competent students, success later on in life will become second nature.

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The Impact of Digitally Mediated Communications on the Academic Integrity of Online Learning and Assessment

Hannes Nel

ABSTRACT

Online or e-learning is rapidly becoming the most popular approach to learning. With the benefits of e-learning, of which efficiency is probably the most important one, arise new challenges in ensuring the academic integrity of the learning and authenticity of learner performance. The main security issues in online education are protection against manipulation, the maintenance of confidentiality, authenticity, server protection, access control, protection of communication and some non-repudiation issues. Some form of quality assurance is necessary to ensure the validity, reliability, relevance and sufficiency of the online learning and assessment design and development, and the authenticity, fairness and legitimacy in which online learning and assessment is conducted. Ensuring the integrity of e-learning can be expensive, with the result that a balance needs to be struck between effectiveness, technical and moderation controls, student convenience, the benefits that are to be gained and costs.

Key words: online learning and assessment, academic integrity, digitally mediated communications

Introduction

Once confined to physical classrooms, today’s learner connects globally for communication, entertainment, education and information thus placing the individual in a new position that allows for the creation of an expanded identity, according to the New Media Consortium, 2007 (as in Baggio & Beldarrain, 2011:x). The increased demand for cyber-education calls for a heightened sense of awareness among all stakeholders of online learning programmes because digitally mediated communications afford benefits as well as constraints – new opportunities and increased options available to instructional designers, cyber-educators and learners, as well as concerns of anonymity, authenticity, identity and trust.

The ‘other side’ to digitally mediated learning is the less discussed part of online learning that is challenged by cheating, authenticity, identity and privacy issues (Baggio & Beldarrain, 2011:x). Some sources claim that the number of students trying to cheat in their final examinations is on the increase (Williams, 2010; NYU Tisch School of the Arts, 2012; Edbok Blog, 2012). In one research project almost three-quarters of students surveyed perceived cheating online was easier than in face-to-face classes (King, Guyette & Piotrowski as in Young & Kraglund-Gauthier, 2012:6).

The fact remains, learner authenticity, assessment reliability and data security are issues most online establishments need to address more feverishly (Baggio & Beldarrain, 2011:x). In an educational era focused on expectation related to programme accreditation, academic integrity is paramount to programme success and credibility. Managing the financial and accreditation needs of institutions with authentic and appropriate methods of teaching, learning and assessment is a precarious balance – one in which the potential for misbehaving online can quickly tip the scales to the side of questioning the credibility of online learning and misusing power in terms of data privacy (Young & Kraglund-Gauthier, 2012:2).

This paper presents a critical review of the environmental factors that have an influence on the integrity of online education and how authenticity can be enhanced by different forms of quality assurance. In doing so, research and discussions on security management of online learning have been considered, as well as reflection of challenges in the industry. The paper is presented in three sections. The first is the position of e-learning in the learning system, which includes the security challenges digitally mediated communications bring about; the second deals with the e-learning and digitally mediated communication security factors; and the third contemplates how the academic integrity of an online education system can be ensured by means of quality assurance measures.

The position of online or e-learning in the learning system

E-learning is the implementation of technology in order to support the learning process, whereby knowledge or information can be accessed using communication technology (Alwi & Fan, 2010:149). According to the Chartered Institute of Personnel and Development (CIPD factsheet, 2014) e-learning has in subsequent years progressed rapidly to encompass a wide range of both formal course-based e-learning packages and products together with a huge variety of complementary or alternative e-learning techniques, such as sharing knowledge or links to resources via social/interactive media sites and viewing/participating in online lectures, web seminars (webinars), podcasts or micro-blogging - digital collaboration¹.

More recent trends encompass the development of gaming technology to support learning, artificial intelligence and the use of cloud computing, including the potential to deliver learning according to user requirements via the Internet rather than by in-house computing systems (CIPD factsheet, 2014).

Distance education (SACSCOC, 2012:1) is a formal educational process in which most of the instruction (interaction between students and instructors and among students) in a course occurs when students and instructors are not in the same place. Instruction may be synchronous or asynchronous. A distance education course may use the Internet; one-way and two-way transmissions through open broadcast, closed circuit, cable, microwave, broadband lines, fibre optics, satellite, or wireless communication devices; audio conferencing; or video cas-

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¹ Digital collaboration is the use of technology to facilitate collaboration among people, whether in different locations or at the same location, to achieve a common goal. It involves the use of tools such as video conferencing, instant messaging, chat, and collaborative software to enable real-time interaction and collaboration.
settes, DVDs and CD ROMs if used as part of a distance learning course or programme. The relationship of these approaches can be illustrated as follows:

![Distributed Education (distance and online learning)](image)

**Figure 1: The relationship of learning approaches**

Both distance and blended learning imply e-learning which encompasses digitally mediated communications. These cause many institutions to struggle with evaluation and assessment, due mainly to the anonymity factor. Technology provides new ingenious methods of cheating, and the general views on what constitutes cheating continue to evolve. Learners have easy access to a myriad of online services that provide instant answers to just about any question (Baggio & Beldarrain, 2011:xii).

Cyber-educators are therefore scrambling to find preventative measures that safeguard academic integrity. But integrity issues do not only point to the student; integrity involves administrators and instructors. Falsifying grades and providing special favours for elite students are part of academic fraud in online learning (Baggio & Beldarrain, 2011:xii).

The following have lately been reported to be the most popular methods of breaching authenticity in examinations (face-to-face and online) (Williams, 2010; NYU Tisch School of the Arts, 2012; Edbok Blog, 2012):

- By means of cellphones smuggled into examinations.
- Learning institution staff members helping students cheat.
- Impersonation.
- Bringing unauthorised materials into the examination room (laptops, Internet, pre-recordings, concealed earpieces, calculators, dictionaries, study guides, notes, etc.).
- Opening question papers early (if examinations are written on paper and in an examination room).
- Talking with fellow students or looking at another person’s work during an exam.
- Allowing students to sit for examinations at an incorrect time.
- Lack of appropriate invigilating.
- Disruptive behaviour.
- Tapping/communication beepers.
- Submitting substantially the same work in multiple courses without the explicit prior permission of the instructor.
- Purchasing a paper or hiring someone else to write a paper for you.
- Altering or forging academic documents, including but not limited to, admission materials and medical excuses.
- Unauthorised collaboration on work intended to be done individually.

It becomes clear that there is a growing sense of awareness and frustration with the issue of academic dishonesty, especially in online learning programmes. A question mark hovers over the authenticity of online assessment results that raises serious issues of compliance, security and validity. The possibility that students (and in some instances even learning institution staff members) may cheat, makes it necessary to institute concerted measures to curtail malpractices.

**Digitally mediated learning and assessment and security management**

Online learning is unfortunately seen by many as a way of reaching more students at a lower cost. If organisations hastily prepare a programme or take financial shortcuts, quality is sacrificed (Baggio & Beldarrain, 2011:xiii). This may jeopardise the trust of role-players in education and training in the reliability and trustworthiness of the online education and assessment system. Whether these infractions are malicious, accidental or by negligence, they can have serious repercussions for a system and its administrators.

The speed at which technologies have changed educational practices has, in some cases, moved faster than the creation and implementation of effective strategies for teaching at a distance and the authentic assessment of e-learning (Young & Kraglund-Gauthier, 2012:3). Issues such as legitimate users, course content reliability, accessibility (including admissibility and availability), as well as other considerations, such as the inconsistency of the assessment process, need to be carefully addressed in order to ensure that online learning takes place effectively.

Monitoring progress online is important to maintain a systematic and consistent learning and assessment process, but it must be carefully applied if students are not to lose trust and reject the online system. Concerns are therefore not limited to verifying the identity of the student, or making sure data is safe. Digitally mediated communications envelop dichotomies that suggest the safety of privacy and anonymity, yet capture and record each interaction (Baggio & Beldarrain, 2011:x).

Securing the e-learning environment requires, according to Alwi and Fan (2010:152), avoiding four types of threats: fabrication, modification, interruption and interception, while the main security issues impacting the integrity of the online learning and assessment system are:

- Protection against manipulation by students or insiders.
- User authentication.
- Confidentiality.
- Restricted availability/access control.
- Protection of communication.
- Non-repudiation issues.
- Server protection.

Information can land in the wrong hands and lead to the loss of confidentiality, integrity and availability by (Alwi & Fan, 2010:151):

- Deliberate software attacks.
- Technical software failures and errors (bugs, decoding problems, unknown loopholes).
- Acts of human error or failure (accidents, employee mistakes).
• Deliberate acts of espionage or trespassing (unauthorised access and/or data collection).
• Deliberate acts of sabotage or vandalism (destruction of information or systems).
• Technical hardware failures or errors (equipment failures).
• Deliberate acts of theft (illegal confiscation of equipment or information).
• Compromising of intellectual property (piracy, copyright, infringement).
• Quality of service deviations by service providers.
• Technological obsolescence.
• Deliberate acts of information extortion (blackmail for information disclosure).

Securing the e-learning environment requires careful planning and attention to detail. The most ubiquitously used way in which to combat threats to the e-learning system is access control, and access control mostly entails authentication and authorisation processes. An e-learning system that is, on the other hand, too heavily secured will be difficult to access by even authorised users, and this might lead to unfair assessment practices and appeals. So, what we need is a balance between access and security.

An online learning and assessment system must ultimately also facilitate usability or availability. It serves no purpose having a perfectly secure system that nobody can use. Security can be enhanced by secure and disciplined work practices and organisational strategies articulated to the security needs of the online system. For example, sound verification procedures can enhance security while at the same time ensuring that the principles of assessment are met.

Ensuring authenticity in online learning and assessment can be expensive, with the result that a balance needs to be struck between effectiveness, control, student convenience, the benefits that are to be gained and costs. This balance requires a continuous trade-off between controls in the system and controls in the environment; security control versus customer convenience and productivity; strong controls versus costs, etc.

These threats are mostly countered by means of policies, simple but effective processes and procedures, organisational structures that are articulated to the conducting of e-learning, using well-designed software and suitable hardware, access management/control, the protection of intellectual property and regular review of the e-learning management system.

However, the security that can be achieved through technical means is limited. The authenticity and integrity of online learning through digitally mediated communication should not only be supported by responsible management, but also by considering both the medium for delivery and pedagogy. Achieving academic integrity in cyber-education must be rethought and reshaped by leveraging and balancing the two sides to digitally mediated learning (Baggio & Beldarrain, 2011:iii), namely managing the financial and accreditation needs of institutions with authentic and appropriate methods of teaching, learning and assessment.

Designing for authenticity would also require applying newer forms of educational technology such as avatars and virtual worlds not only to support the learning process, but also to create new forms of assessment that place the learner in a real world scenario (work-integrated learning) where critical thinking skills and new concepts must be applied (Baggio & Beldarrain, 2011:iii).

Ensuring the academic integrity of the online learning and assessment system by means of quality assurance measures

Quality assurance bodies and learning institutions alike do their utmost to ensure that learner performance provides a true reflection of the actual knowledge and skills of the learner. Quality assurance begins with ensuring validity, reliability, relevance and sufficiency by designing and developing learning and assessment instruments. Authenticity, fairness and legitimacy are ensured by the manner in which assessment and internal moderation is conducted.

Academic integrity in online learning therefore relies on the protection of data from intentional or accidental unauthorised changes. Although availability and integrity are the main security elements which require emphasis within online learning environments, the element of confidentiality is also important. Confidentiality is the protection of information in the system so that unauthorised persons cannot gain access (Alwi, & Fan, 2010:153).

As integrity depends on access controls, it is necessary to positively and uniquely identify all persons who attempt access. Integrity can be compromised by hackers, masqueraders,7 unauthorised user activity, unprotected downloaded files, local area networks (LANs) and unauthorised programmes (for example, trojan horses and other viruses), simply because each of these threats can lead to unauthorised changes to data or programmes.

Research has shown that hackers pay more attention to human factors than to security designs (Adams & Blandford, 2003:2). The technique of social engineering specifically exploits user lack of security awareness to breach security, for example by obtaining access to information by deception or persuasion, or by other perils such as trolling and phishing. So, it is important to consider human factors in the design of security mechanisms.

This can be achieved by making use of (Training News E-Learning News, 2007) secure socket layer (SSL) encryption, anti-virus software, anti-spyware, data encryption, firewalls and a hosted learning management solution partner who specializes in secure online systems.

Pivotal to the concept of confidentiality is authentication, which also relates to integrity. To maintain appropriate access to information, and yet protect it from unsanctioned manipulation, it is crucial to authenticate users accurately. One or a combination of ways to authenticate a user on an online learning programme can be used (Adams & Blandford, 2003:7).

Young and Kraglund-Gauthier (2012:7-10) consider that both software and hardware may be involved in authentication of online assessment, including on-board cameras commonly found on today’s laptops and more advanced USB cameras, audio monitoring via an on-board or attached microphone, a variety of browser lockdowns, software connectivity with
Learning management systems (LMS), test delivery systems (TDS) or software designed to compare photo identification, keystroke analysis and biometric technologies. In Table 1 they compare methods used to protect testers and test takers:

As explained earlier, the security that can be achieved through technical means is limited. Achieving academic integrity in cyber-education must be rethought and reshaped by leveraging and balancing the two sides to achieve digitally mediated learning (Baggio & Beldarrain, 2011:xii), namely managing the financial and accreditation needs of institutions with authentic and appropriate methods of teaching, learning and assessment.

“The world of cyberspace opens up a new realm of possibilities for educators: hence, a shift in perspective is needed to create a normalised set of ethical guidelines that re-focus the attention of cyber educators and other stakeholders on student learning and not on taking shortcuts.” This shift, according to Baggio & Beldarrain (2011:xiii), requires everyone

<table>
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<tr>
<th>Method</th>
<th>Advantages</th>
<th>Disadvantages</th>
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</table>
| Real-time monitoring via proctors physically present | - Real-time, physical monitoring of the student’s actions during a resting situation.  
- Proctor locations tend to be at academic institutions with similar concerns about academic integrity.  
- Communication and arrangements between institutions and proctors can be made easier through established policies and procedures.  
- Proctor can be an additional layer of security in terms of a user login to testing materials of the student’s institution.  
- Non-invasive. | - Requires physical presence of student and proctor, which may not be convenient for either.  
- Students may incur proctoring fees.  
- Onus is on the proctor to monitor student diligently.  
- Course work must be sent back to the student’s institution, which may take time.  
- Geographical time zones could mean one student has written an exam before or after other, opening up the potential for questions and answers to be shared between students. |
| Photo identification                        | - Visual confirmation of identification.  
- Student ID card chip code can be cross-linked with course assessment material.  
- Non-invasive. | - Requires physical presence of the student and a proctor or other authorised personnel.  
- Document can be altered.  
- Authorised personnel may not know what an official identification card looks like in other parts of the world. |
| User names and passwords                    | - Cost-effective, easily implemented.  
- Non-intrusive.  
- Can be easily reset or changed.  
- A proctor can be provided with a user name and password to input on the student’s behalf. | - Can be shared between users or stolen.  
- Passwords may expire or students may forget them and be unable to access required materials. |
| IP address tracking                         | - Identifies the geographic location of the user.  
- Non-invasive. | - Students may not always use the same computer to do work, especially if travelling during the course.  
- Only identifies the computer’s geographic location, not the individual using the computer.  
- IP addresses can be masked and users can route IP addresses through other servers.  
- IP addresses are considered personal information and must be protected from misuse. |
| Electronic monitoring via webcam            | - Student does not have to arrange to visit a proctoring site.  
- Can complete the assessment in familiar surroundings.  
- Hardware and software are relatively inexpensive. | - Accrued hardware and software costs.  
- Student must be able to operate hardware.  
- If there is technical failure, student may not be able to complete the assessment when scheduled.  
- Requires physical presence of individual to monitor Internet feed.  
- Does not take into account time zone differences.  
- Invasive. |
| Physical biometrics (i.e. fingerprint or retinal scan, voice recognition) | - Physiological data is unique to that user.  
- Highly accurate. | - Requires specialised hardware and software.  
- Expensive to implement.  
- Invasive. |
| Behavioural biometrics (i.e. keystroke pattern analysis, signature patterning) | - Relatively inexpensive to implement.  
- High accuracy.  
- Non-invasive. | - Additional software required.  
- Requires analysis of data, expending time.  
- Keystroke patterns could be affected by different keyboard designs, injuries, mental stress or fatigue. |

Table 1: Comparison of methods used to proctor testers and test takers
involved in the creation and support of an online learning programme to accept responsibility for his or her role and how it impacts student learning.

The task of creating and maintaining a culture of integrity then rests with all stakeholders, each of whom bears certain responsibilities to each other and to themselves. This will require a concerted effort, one aspect of which the triad of administrators, faculty members and students assumes responsibility for “policing (catching and punishing cheaters), prevention (designing courses and assignments that discourage cheating), and virtue (creating learning communities in which students do not want to cheat)” (McNabb & Olt, as in Young & Kraglund-Gauthier, 2012:3).

Authenticity can also be ensured by making use of a combination of internal moderation and external moderation, often also called verification. A second step to ensure authenticity in assessment is by having students write external examinations, for example examinations prepared by an assessment centre or learning institution other than the one whose students are writing the examination and by making use of second examiners.

External examiners are usually assessors from other learning institutions, and they are required to write and submit reports on the quality, level and relevance of examination instruments used, the manner in which the examinations were conducted and the final results. A weakness of the external examiner procedure is that some learning institutions tend to use the same second assessors year in and year out.

An important role a quality assurance body can play in ensuring the authenticity of examination results is by checking the assessment capacity of the learning institution when it is accredited, as well as periodically thereafter, for example, by checking that external examiners are rotated regularly. Assessment capacity implies that the resources, as well as well-prepared assessment policies and procedures, are in place. Peer review can also be used to ensure that examination results are authentic. Peers can do much more than this: for example, they can check if the assessments meet the principles for assessment.

In the case of postgraduate studies, a student’s research report (in the form of a thesis, script, etc.) is sent to at least two external examiners (after the study leader or promoter has assessed the report). PhD theses are usually sent to three external examiners one of which should be an international examiner. The reports of the study leader/promoter and external examiners are integrated by a convenor who is usually the Dean of the Faculty, the Head of the Department or the Head of the School, depending on how the learning institution is structured.

Currently the lines between right and wrong are often blurred, giving rise to global concerns about the academic integrity of online learning and assessment. To implement security measures to protect the integrity of the system, they are to (Adams & Blandford, 2003) encourage a possible means to manage the financial and accreditation needs of institutions with authentic and appropriate methods of teaching, learning and assessment. Quality assurance should require everyone involved in the creation and support of an online learning programme to accept responsibility for his or her role and how it impacts student learning.

Conclusion

For academic integrity to be maintained in order for institutions to retain their credentials, multiple strategies are to be used. Pedagogical approaches and assessment techniques must be more authentic and reliable than ever before and more emphasis must be placed on prevention, not only through course design, but also through assessment design. Assessment must mirror the real world, and require the learner to apply new knowledge (Baggio & Beldarrain, 2011:xiv).

Whilst Baggio and Beldarrain’s suggestion is still in a process of realisation, it is crucial to the integrity of online learning and assessment results that the learning institution must have sufficient evidence that the person who wrote the exam or submitted an assignment for assessment was a registered student.

Ensuring the academic integrity of e-learning and assessment can be achieved through technical means, but more important is to strike a balance between effectiveness, control, student convenience, the benefits that are to be gained and costs within the broader quality assurance system that is put into place currently still an unresolved flaw in almost all online assessment systems. Therefore, it is still advisable to arrange real-time monitoring via proctors physically present during online assessment until such time as more sophisticated security and quality assurance practices are put in place.

REFERENCES


NOTES

1 Digital collaboration means working together and sharing ideas and information using digital technology in digital format, this usually occurs online where multiple users can collaborate simultaneously from various locations (usually computers, also mobile devices such as cell phones and pads). It is a digital form of social collaboration.

2 Masqueraders are users that act as if they are other users, in this context, users that log into other users accounts and act thus making the system think that they are someone else.

3 Local Area Network, a small (local) network, home and office networks usually fall into this category.

4 SSL is a protocol for encrypting information over the Internet.
Barriers to Learner Transfer of Learning

Stephen Barnard and Cookie M. Govender

ABSTRACT

The transfer of learning after training is relevant to human resources development (HRD) practitioners, human resources (HR) divisions and all managers within organisations. An investigation into the potential transfer learning barriers that could have an impact on the successful transfer of learning has revealed that line managers who fail to support and encourage the application of learning after training, represent a barrier to the transfer of learning. This study highlighted how important it is for managers, line and HR, to manage the transfer of the learning process; to be the link between learning, application of that learning on the job, and individual and organisational performance improvements.

Key words: transfer of learning, training, learning transfer systems inventory, learning transfer barriers

Introduction

The transfer of learning is a challenge for organisations endeavouring to ensure that their investment in training pays off. The most commonly cited estimate is that just 10% of learning is transferred to improved job performance, and that a substantial amount of organisational investment in HRD is wasted owing to limited learning transfer (Holton & Baldwin, 2003). The effect of not addressing the problem of transfer learning is that learning interventions are designed, developed and delivered for activity and not for impact.

Research conducted in the learning transfer field during the period 1927 to 1987 by Baldwin and Ford (1988:63-105) indicated three main categories of training input factors: the design of training, learner characteristics and environmental factors. Training design factors relate to content that is too theoretical, learner characteristics leading to a low level of motivation to transfer learning and environmental factors not having the opportunity to plough learning back into the working environment. A well-developed transfer system in an organisation where a supportive climate for the successful transfer of learning is created, should consider all three of these factors.

Holton and Baldwin (2003:6) believe “that transfer can be greatly affected by intervention. But you have to intervene!” It is clear then that the successful transfer of learning cannot be left to chance.

Unfortunately, there is little evidence to show that the transfer of learning is successful and that can be directly linked to increases in performance and positive changes in behaviour. Transfer thus becomes a critical issue, not only for line managers, but also for HRD practitioners (Baldwin & Ford, 1988; Cheng & Ho, 1999; Noe & Peacock, 2002; Machin & Fogarty, 2004; Machin & Fogarty, 2004; Burke & Hutchins, 2007).

For learning transfer to be successful, organisational strategies must be formulated, reviewed and implemented to ensure that the three main categories of training input factors are addressed and learners are able to apply their learning when they have completed their training. Newly acquired knowledge should ideally result in improved job performance following a course or learning programme.

Cheng and Ho (1999) indicate that individual variables, motivational variables, environmental variables and dependent variables affect the success of learning transfer. Caffarella (2002) states that the perceptions of programme respondents, the programme design and content, the changes required in the workplace to allow application of learning and the organisational context all impact on the success of learning transfer.

This article describes the results obtained from research done in the financial sector to identify and measure the predominant barriers to the transfer of learning when learners return to the workplace after attending training. The study (Barnard,
2013) accentuated how important it is for line and HR managers to manage the transfer of the learning process; managers who are effective transfer agents take fundamental managerial competencies and apply these to improving learning transfer in their organisation; they are the link between learning, application of that learning on the job and individual and organisational performance improvements.

The entire training process should be re-engineered. Following training, managers, trainers and learners should work towards deliberate training application and management coaching on the job. This process not only ensures the transfer of learning, but also makes it possible to measure training results.

Research design

Apart from secondary research done by means of a thorough literature review, the ontological primary approach the researcher used in this study focussed on the views of managers regarding what constitutes barriers to the transfer of learning in their organisation. A mixed methods approach was used as the study was descriptive and exploratory in nature and sought to determine what the predominant learning transfer barriers are that prevent the respondents from transferring their acquired knowledge and skills when they return to the workplace.

This approach favoured a dominant quantitative approach with a secondary qualitative component. Data was obtained using the adapted international survey instrument, the Learning Transfer System Inventory (LTSI) questionnaire. The LTSI is an ideal instrument to evaluate the learning transfer system as it describes the organisational supports and constraints that influence whether respondents take what they have learned and transfer it to the work environment (Donovan, Hannigan & Crowe, 2001).

The LTSI instrument is divided into two parts. The first part requests specific information relating to the training that was attended; the second part requests information on training in general that the learner attended. The respondents indicate the extent to which they agree or disagree with each statement. The 16 factors of the LTSI are described below:

- Factor 1 – Learner readiness. Providing input prior to training, knowing what to expect during training, understanding how training is related to work performance.
- Factor 2 – Performance self-efficacy. Feeling confident and self-assured about applying new abilities, overcoming obstacles that hinder the use of new knowledge and skills.
- Factor 3 – Motivation to transfer. Motivated to use learning, feeling better able to perform, planning to use new skills and knowledge.
- Factor 4 – Transfer effort and performance. Believing that applying skills and knowledge learned in training will improve performance.
- Factor 5 – Performance and outcome expectations. Believing that applying skills and knowledge acquired during training will lead to valuable recognition.
- Factor 6 – Performance coaching. Receiving constructive input, assistance and feedback from people in the work environment when applying new abilities.
- Factor 7 – Supervisor support. Clarifying performance expectations after training, setting realistic goals based on training and providing feedback when successfully applying new abilities.
- Factor 8 – Supervisor sanctions. Using techniques different from those taught in training, not assisting with identifying opportunities to apply new skills and knowledge.
- Factor 9 – Peer support. Peers mutually identifying and implementing opportunities to apply skills and knowledge learned in training.
- Factor 10 – Resistance to change. Resistance to change, unwilling to invest energy in change and not supporting people who use techniques learned in training.
- Factor 11 – Personal outcomes (positive). Increased productivity, work effectiveness, increased personal satisfaction or the opportunity to advance in the organisation.
- Factor 12 – Personal outcomes (negative). Reprimands, penalties, peer resentment, reassignment to undesirable jobs or reduced opportunities for further career development.
- Factor 13 – Opportunity to use newly acquired skills and knowledge. Providing opportunities to apply new skills, resources needed to use new skills and adequate financial and human resources.
- Factor 14 – Personal capacity to transfer new skills and knowledge. Workload schedule, personal energy, and stress level facilitate or inhibit the application of new learning on the job.
- Factor 15 – Perceived content validity. Skills and knowledge taught during training are similar to performance expectations, as well as to what is needed by the individual to perform more effectively.
- Factor 16 – Transfer design. The training programme is designed to clearly link learning with on-the-job performance through the use of clear examples and methods similar to the work environment.

The LTSI requires 20 to 25 minutes to complete. The adapted LTSI version three, with 53 questions, was used specifically to identify and measure the potential barriers to the transfer of learning for this research study, using a Likert scale of 1 to 5, with 1 being ‘strongly disagree’ and 5 being ‘strongly agree’. The LTSI Administrator Guide was used as a guideline to administer the LTSI. This adherence to procedure and process allows the results of the measuring instrument used in this study to be compared to other studies using the same instrument, either conducted previously or in the future.

The researcher was aware that the contributions made by the participants were based on their understanding and interpretation of barriers to the transfer of learning as defined by the LTSI. The researcher decided to use the interpretivist approach to understand and verify what the predominant barriers to learning transfer were by understanding and interpreting the participants’ perceptions.

Quantitative data gathered through the answering of the LTSI questionnaire was analysed statistically using frequency and factor analysis with the IBM Statistical Package for Social Science (SPSS). The qualitative data was generated by including two additional open-ended questions to the LTSI:

- In your view, what are the most important barriers that would limit you in applying the knowledge and skills acquired during training at your workplace?
- Do you have any other comments or suggestions for re-
ducing barriers to learning transfer from the learning situation to the workplace?

Content analysis was used to investigate the feedback provided by the respondents to determine the most common problems that could hinder the successful transfer of learning.

The most significant limitation was the formal process that had to be adhered to in using the international LTSI instrument. The researcher was required to obtain permission to use the LTSI in the South African context. As part of the agreement between the researcher and the owners of the LTSI, the data had to be shared before more detailed factor analysis could be conducted. Limited analysis strategies were provided; hence the analysis of the data may not be directly comparable to previous findings of the LTSI instrument usage.

A limitation specific to this study presented itself when access was gained to the group of respondents within the specific bank of the financial services sector. Fortunately, the sample that was chosen had completed a suitable learning intervention that emphasised the transfer of learning to the workplace.

A clear limitation regarding this study was that the research population and the learning intervention were specific variables that produced specific results for this study. A different target population attending a different learning programme might have produced very different findings using the same instrument.

A further limitation of this study was that the views provided by respondents on the qualitative questions could be interpreted as subjective. The lack of time to implement the training, or the workload, made it difficult to transfer the learning and could be an excuse used by the respondents not to transfer their learning.

RESEARCH RESULTS

Literature review

In the secondary research a literature review revealed the potential barriers in organisations that impact on the successful transfer of learning and the predominant barriers to the transfer of learning at individual, group and organisational level and how these barriers can be minimised or removed to maximise learning transfer.

Various definitions for transfer of learning exist. Kirwan (2009:5) defines learning transfer as “the skills acquired or knowledge gained in training that are used by the learner when she or he returns to the workplace”. The definition also includes applying the learned material over a period of time. Transfer of learning can also be defined as the application of knowledge, skills and attitudes learned from training on the job, and subsequent maintenance of these over a certain period of time (Baldwin & Ford, 1988).

An investigation into the various definitions developed over time revealed that the application of the knowledge and skills obtained as a result of the learning intervention was crucial to the learning transfer success. Although these definitions point to the ideal learning transfer situation, in reality, the literature research provided limited evidence that skill, knowledge and behaviour from training resulted in changed, improved practices (Baldwin & Ford, 1988; Gist, Bavetta & Stevens, 1991; Ford & Weissbein, 1997).

A transfer of learning model developed by Foxon (1993), based on force field theory, is presented in Figure 1. It recognises that learning transfer is subject to various influences and cannot be seen as isolated factors having an impact. The forces have both a push and pull effect. They can work for change or constrain the planned transfer of learning.

These inhibiting and supporting factors that influence the intention to transfer learning reside in factors such as the learner, the trainer, the managers, the organisation and the organisational climate. Various models for the transfer of learning exist, such as the Baldwin and Ford (1988) and Broad and Newstrom (1992) models that are similar to the Holton (1996) model shown in Figure 2.

In observing the development of managers, the Corporate Leadership Council (2005) identified the following individual, group and organisational barriers to learning transfer which relate to the inhibiting factors mentioned earlier:

- Lack of authority.
- Lack of clear performance criteria.
- Lack of peer, managerial, and organisational support.
- Lack of reinforcement on the job.
- Organisational politics.
- Perceived irrelevance of training.
- Time and work pressures.

Figure 1: Transfer model: Inhibiting and supporting factors influencing intention to transfer
Figure 2: Conceptual evaluation approach to the transfer of learning

Table 1: Relationship between transfer barriers and strategies

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<tr>
<th>Transfer barrier variables</th>
<th>Potential transfer strategy</th>
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<tbody>
<tr>
<td>Lack of reinforcement</td>
<td>Coach performance</td>
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<tr>
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<td>Assist in implementing action plans</td>
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<tr>
<td>Interference from work environment</td>
<td>Provide necessary resources for practice</td>
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<td>Provide time for information sharing</td>
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<td>Provide positive training environment</td>
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<td>Non-supportive culture</td>
<td>Provide mentoring and coaching skills training</td>
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<td></td>
<td>Emphasise the importance of learning</td>
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<tr>
<td>Irrelevant training</td>
<td>Align training plan with business plan and yearly objectives</td>
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<td></td>
<td>Sequence courses into logical course maps</td>
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<tr>
<td>Poor planning</td>
<td>Use training profiles to plan training and class schedules</td>
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<tr>
<td>Poor design and development</td>
<td>Provide expert resources for design and development</td>
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<td></td>
<td>Include learner input in design, development and revisions</td>
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<td></td>
<td>Use performance based objectives and exercises</td>
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<td>Poor delivery</td>
<td>Use real-life examples</td>
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<td></td>
<td>Facilitate action planning</td>
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<td>Communicate the importance and relevance of training objectives to the job</td>
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<td></td>
<td>Provide necessary training media and equipment</td>
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<td>Lack of continual training improvement</td>
<td>Evaluate training on an ongoing basis</td>
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<td></td>
<td>Read journals, books</td>
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<td>Attend external conferences</td>
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investigated who was primarily responsible for barriers to learning transfer. These authors found that managers and/or supervisors are an important factor in the learning transfer challenge. Supervisors who encourage the application of learning impact positively on the success of the training intervention. Thus supervisors are identified as the primary target for change with regard to the learning transfer challenge.

In addition, Broad and Newstrom (1992) named further barriers to learning transfer which may exist in an organisation: the lack of a supportive organisational culture, the lack of relevant resources and negative peer group pressures could deter learners from applying newly acquired skills.

The supporting and inhibiting factors mentioned earlier thus require a deliberate approach to minimise barriers to learning transfer to be implemented before the training starts, during the actual training intervention and after training has been completed, as learners “must be able to apply their knowledge and skills fully and effectively with the necessary support and without major barriers” (Kirwan, 2009:2). Individual, group and organisational factors influencing the transfer of learning are summarised in Table 1 according to the factors and the strategy to eliminate these barriers (Kirwan, 2009).

Based on the literature research, managers and/or supervisors amongst all the supporting and inhibiting factors, are found to be crucial in creating learning transfer obstacles or successes. Laker (1990) and Broad and Newstrom (1992) indicate that underinvolved managers and supervisors who fail to support, mentor and coach learners on the job create barriers to transfer instead of enabling learning transfer and successful changed behaviour. Hence, managers and supervisors are also targets for change interventions so that they become enablers rather than barriers to learning transfer.

Brown and McCracken (2009) confirm this notion that there is an increased understanding that key stakeholders must be involved in in-post training activities so that learning transfer leads to behaviour change. Ideally, managers should measure whether learning transfer is effective after training and should support the application of learning by identifying and minimising barriers that could inhibit changed behaviour. The challenge is the fact that managers in all divisions and at all levels of the organisation are plagued by the increasing scope of their job and the time pressures they face in meeting organisational goals.

The decision to support learning transfer is appropriate for the use of new skills and knowledge (Broad, 2005). Managers should address the credibility of new skills for improving performance. They should assess the practicality of the new skills for application to performance and recognise the need for improving performance by providing opportunities for learners to apply the new skills and knowledge regularly (Broad, 2005).

It becomes evident that barriers to the transfer of learning in organisations are rarely due to a single factor, but rather to a combination of factors that inhibit individual, group and organisational learning. The application of knowledge and skills used in the workplace after learning has occurred, as well as the time that has elapsed between training and application is crucial to the success of learning transfer and can, to a large extent, be successfully managed by line and HR managers.

Primary research results

A convenient sample of 163 managers in the financial services sector working in the same bank was selected to complete the LTSI, as they all attended the same training intervention. Participants were informed of the aim, process and objective of the research process in which they were participating. The respondents were encouraged to complete the questionnaire as honestly as possible, and were given detailed information on how to complete it.

A diverse sample completed the LTSI. Of this sample, only 154 of the 163 questionnaires were considered to be valid and were included in the analysis. A highly significant 94.5% return rate was achieved by this study. Most of the respondents in this study were female (68.8%). The breakdown of respondents per population grouping was important, as it depicted a representation or divergence from the racial composition of the country. The highest number of respondents came from the African (35.7%) population group, the second highest group of respondents were Coloured (27.3%), with the White and Indian respondents together making up a total of 35.1%.

Information was kept confidential and only used to address the research problem identified in this study. Their confidentiality was assured, as individual responses will not be revealed publicly and anonymity was guaranteed as the names and surnames of the respondents were not required. Owing to the size of the group of respondents that were spread across the country, practical guidelines needed to be taken into consideration in terms of time and cost. Email and the internal mailing system of the organisation were used to receive the completed questionnaires.

The quantitative data was gathered from the respondents and captured on a Microsoft Excel spreadsheet in readiness for statistical analysis using the IBM SPSS software. The quantitative data was subjected to a first order and subsequent second order factor analysis. In both cases, factors were extracted using the Principal Factor Analysis (PFA) and the Kaiser criteria. The data was subjected to diagnostic tests, the Bartlett Test of Sphericity and the Kaiser Mayer Olkin (KMO) Measure of Sampling Adequacy (MSA). All factors were shown to be significant as the significance value (p) was less than 0.05.

The qualitative data was subjected to content analysis. Feedback from the respondents was examined systematically and objectively to extract common themes relating to learning transfer barriers.

The research was conducted by complying with the following broader ethical obligations: doing value-adding research, achieving objectivity and maintaining integrity, following ethical publishing practices, being accountable to society, being sensitive to and respecting the right to privacy of the research respondents, being sensitive to and respecting the right to anonymity and confidentiality of the respondents, being sensitive to and respecting the right to full disclosure of the research conducted and protecting the integrity of the environment. The results of the primary research which examined the predominant barriers to transfer of learning highlighted five major barriers to the transfer of learning:
The ‘opportunity to use’ the LTSI factor, according to the research results, relied heavily on the organisation, line managers or supervisors, whereas the ‘learner readiness’ factor was indicated as important, as it involves respondents providing input prior to training and preparing them for the learning process (what to expect, outcomes to achieve, the assessment process, etc.).

The ‘perceived content validity’ factor again showed that if not adhered to, it will cause a misalignment between the training provided and what actually happens in the working environment. The ‘peer support’ factor was indicated as an appropriate work environment factor that could aid successful transfer of learning - colleagues, who mutually appreciate the completed training and encourage one another to apply it, could ensure that newly acquired knowledge and skills are used.

The qualitative analysis revealed that barriers are predominantly aligned with physical-structural barriers. Time is a barrier to the transfer of learning, and a heavy workload also makes it difficult to put newly acquired knowledge and skills into practice.

A total of 67 respondents provided qualitative feedback on Question 52 of the questionnaire, namely “In your view, what are the most important barriers that would limit you to apply the knowledge and skills acquired during training at your workplace?” Table 2 presents the common barriers from the learner perspective that prevent transfer of learning.

Table 2: Common barriers from the learner perspective

<table>
<thead>
<tr>
<th>Main issues identified from qualitative feedback</th>
<th>Number of respondents</th>
</tr>
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<tbody>
<tr>
<td>I do not have time to apply my new learning.</td>
<td>30</td>
</tr>
<tr>
<td>My workload is too big and this makes it difficult for me to transfer my learning.</td>
<td>16</td>
</tr>
<tr>
<td>There is too much happening in my environment to take time to transfer my learning.</td>
<td>7</td>
</tr>
<tr>
<td>The training is not aligned with what I do in my job.</td>
<td>7</td>
</tr>
</tbody>
</table>

Only 20 respondents provided feedback on Question 53, namely “Do you have any other comments or suggestions for reducing barriers to learning transfer from the learning situation to the workplace?” Significant common responses indicated that the following could be possible solutions that would improve the transfer of learning:

- Training should not be scheduled over a month-end.
- Updated and relevant learning material should be used for training delivery.
- Coaching by immediate line manager would be welcomed.
- A suitable time frame for the learners to implement their learning to be provided.
- Follow-up sessions to reinforce learning should take place
- Practical examples should be used in the learning environment relating to the actual working environment.

Other barriers identified by this research included the following: lack of or poor support from the immediate line manager, various commitment levels of peers to use the newly acquired knowledge, not having the correct tools to execute the work, lack of a formally developed induction programme for the organisation, receiving too many incoming calls, emails and requests for query resolution, looking after a colleague’s work while they are on leave and tight deadlines to manage.

Discussion

The group of respondents used in this research study was relatively young and diverse. The environment in which they operate is fast-paced, stressful, constantly changing, and places huge demands on them to grasp, understand and ultimately transfer their acquired knowledge and skills to the workplace. Transfer of new learning does impact on their career progression and even on meeting their performance outcomes. Ultimately a lack of transfer of new learning could affect their job survival.

In the light of the above and the major barriers made up of situational, learner orientation and managerial indicators, ‘performance coaching’ was singled out as a significant managerial indicator leading to learning transfer for this group of respondents. This finding proved to be consistent with research by Laker (1990) and Broad and Newstrom (1992) that showed that managers are an important factor in the learning transfer challenge.

This was of special concern for the organisation within which the research was done, as an investigation into the historical data of the organisation revealed that the line managers and/or supervisors overseeing the respondents underwent a detailed learning programme to become workplace coaches, but no evidence of peer coaching could be found.

It could also be argued that not enough formal or informal indicators were given to the respondents to assist them with the learning transfer process. This again means that no formal coaching plans and objectives were in place between the line managers and respondents, or that little advice was given to learners on how to improve job performance using the newly acquired skills.

Significant situational indicators leading to impaired learning transfer were indicated as factors reducing the opportunity to use newly acquired knowledge and skills when returning to the workplace. An analysis of the qualitative results supported this barrier in that respondents agreed that these two aspects were significant barriers for them:

- Not enough time to apply the knowledge and skills acquired from the learning programme when returning to the workplace.
- There is too much happening to give the respondents the chance to use the skills and knowledge acquired from the learning programme.
Both these barriers could mean that the organisation was not providing the respondents with resources (e.g. equipment or materials) and/or tasks to use the acquired knowledge and skills of the learning programme on the job. Both are powerful ways to improve learning transfer as they give meaning to the processes explored in the learning environment and they are closely aligned with what is expected in the workplace. Managers should ideally ensure that adequate access to resources is provided to transfer the newly acquired knowledge and skills.

Learner readiness and perceived content validity (evident in the qualitative data analysis, as well as the qualitative feedback received) were identified as learner indicators crucial to learning transfer, as they prepare the respondents for what to expect and how their performance should change once they have completed the training. As learner characteristics are one of the three main categories of training input together with design of training and environmental factors (Baldwin & Ford, 1988:63-105) these barriers are significant to learning transfer. To ensure learning transfer, it is crucial that facilitators understand the workplace demands of the target audience to whom they deliver training and perceive learner readiness for the training in question.

Furthermore, HRD practitioners, regardless of the role they play in the learning cycle (instructional designers, learning material developers, facilitators or trainers), should be aware of and concerned with the transfer of learning theories, models and possible strategies to limit learning transfer failure. They should also understand the various factors that could promote or hinder the successful transfer of learning in their respective organisations and design appropriate learning solutions and learning materials that accurately reflect the realities of the job.

Peer support, as a powerful way to improve transfer of learning, should be encouraged. Colleagues that support one another in the workplace act as motivators and could, with their hands-on experience of doing the same job, act as informal coaches.

Conclusion

Organisations will continue to expect a benefit and a return on the investment made in learning interventions which are designed and developed to improve work performance. The fast pace of change and increased demands placed on respondents to transfer their learning will continue to be an issue that needs to be addressed by line and HR managers. This study contributed to the existing theoretical body of knowledge by providing fair, valid and reliable information on the factors responsible for the lack of transfer of learning, and the barriers that impact learning transfer. The results of this study also add value on a practical level.

This research study confirmed the already known barriers to learning transfer and recommends that managers play the role of performance coaches and become enablers of, rather than barriers to, learner transfer of learning. Line and HR managers should identify and understand exactly where the transfer barriers are in the organisation. The importance of line managers in supporting learners before, during and after completion of the learning intervention is emphasised.

Serious consideration should be given to developing all line managers to become performance coaches. This investment could yield results, as line managers could become active transfer agents in the process of ensuring learning transfer success.

On the other hand, this study threw light on the crucial learner characteristics in training input and learning transfer. Learners should have a clear sense of what to expect from a learning intervention, their own readiness for the intervention, how they may be assessed to demonstrate competence and how to use the learning to improve their work performance. Deliberate intervention can lead to the removal of learning transfer barriers before the training takes place and plans can be put in place to manage the transfer of newly acquired skills and knowledge once the learners are back at work.

This study also contributes to the validation of an existing measuring instrument concerning the barriers to learning transfer. The LTSI is a conceptual model and a measuring instrument which has been developed internationally and which is used to identify learning transfer barriers (Holton et al., 2000). The LTSI was adapted for use within the context of the South African financial sector.

REFERENCES


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• Scope and policy
• Form and preparation of manuscripts
• Manuscript submission

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