

Knowledge Building in Accounting Education

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Abstract

The University of Johannesburg (UJ), South Africa, initiated a unique Diploma in Accountancy in which ICT has been integrated into the full 3-year curriculum of two of the financial subjects. This integration of ICT into the curriculum of the subjects (Subject Integrated ICT (SIICT)) was the focus of an impact study, analysed within the framework of Activity Theory, which aimed to identify the impacts that SIICT had exerted on the stakeholders to the diploma. Through empirical data, SIICT has been shown to benefit the students by decreasing study time, enhancing student gradueness and bolstering employability. The case study has shown that the successful outcome of SIICT was ensured due to the convergence, planned and unplanned, of three factors: the full integration of ICT into the curriculum of the diploma subjects; the application of Distributed Cognition for Teams (DiCoT) resulting in knowledge-building, measured by the internalisation and externalisation of the subject knowledge; and, proper and timeous training of the lecturing staff. Using the theory of DiCoT as a baseline and observations of-, and interviews with the SIICT lecturers, arguments for a successful conclusion have been presented. One of the primary stakeholders investigated was the lecturers working as a team, and the conclusions link the results of the interviews and observations to the internalisation and externalisation of the new SIICT subject matter. The case study presents evidence that knowledge building, in the form of DiCoT, is also a leading factor in the successful implementation of SIICT in Accounting. Evidenced in the case study was the co-operation within teams, of three lecturers sharing a subject, which resulted in the creation of common artefacts. Efficient and effective teamwork enhances and strengthens the reciprocal interchange of information within which cognition is shared leading to enhanced internalisation and externalisation of the subject matter, and a strengthening of the “key distributed cognition attributes”. One of the contributions of the case study supported the theory, that there is a correlative relationship between DiCoT and Internalization and Externalization of subject matter, which has been termed “Knowledge building through DiCoT” in the paper.

Keywords: Accounting education; Integration of ICT in accounting; Distributed cognition for teams (DiCoT); Knowledge building; Case study; Internalization & Externalization.

1. Introduction

The University of Johannesburg (UJ), South Africa, initiated a Diploma in Accountancy in which ICT has been integrated into the full 3-year curriculum of two of the financial subjects [1, 2]. This integration of ICT within the curriculum of the subjects (termed Subject Integrated Information and Communication Technologies (SIICT) [3, 4]) was the focus of an impact study. Conducted within the limitations of a case study and analysed within the framework of Activity Theory, the study aimed to identify the impacts that SIICT had exerted on the stakeholders to the diploma. The impact study synthesised the results of graduate surveys, lecturer observations and interviews and a document study.

Through empirical data, SIICT has been shown to benefit the students by decreasing study time, enhancing student gradueness and bolstering employability. The case study has shown that the successful outcome of SIICT was ensured due to the convergence, planned and unplanned, of three factors: the full integration of ICT into the curriculum of the diploma subjects [1]; the application of Distributed Cognition for Teams (DiCoT) [5, 6, 7] resulting in knowledge-building, measured by the internalisation and externalisation of the subject knowledge; and, proper and timeous training of the staff who would be presenting the classes [8].

2. Literature review

Of the three factors, the unplanned factor was the application of knowledge building through DiCoT [5]. As a simplistic explanation, DiCoT is evidenced through teams working together to pool their knowledge and create a artefact of the pooled knowledge [5]. Salomon [9, 10] expresses this cooperation of “sharing authority, language, experiences, tasks and cultural heritage” as distributed



cognitions at work. When this artefact is used to lecture, the lecturer using the artefact is using the pooled knowledge which is greater than their own knowledge [5, 9, 4].

The use of the artefact then imparts new knowledge to the lecturer [1]. This knowledge building takes place through the meaning making of the contents of the artefact causing the knowledge to become personal knowledge [11]. Turning the shared knowledge into personal knowledge is termed “the internalisation of knowledge” [4].

As the lecturer uses the artefact and gains, and internalises, the knowledge he will grow in confidence in the subject matter [4, 5, 7]. As the lecturer grows in confidence his expression of the contents will become more confident, and he will use the artefact less [4, 7]. This outward showing of the knowledge is termed the “externalisation of knowledge” [4].

Depiction of internalisation and externalisation during knowledge building

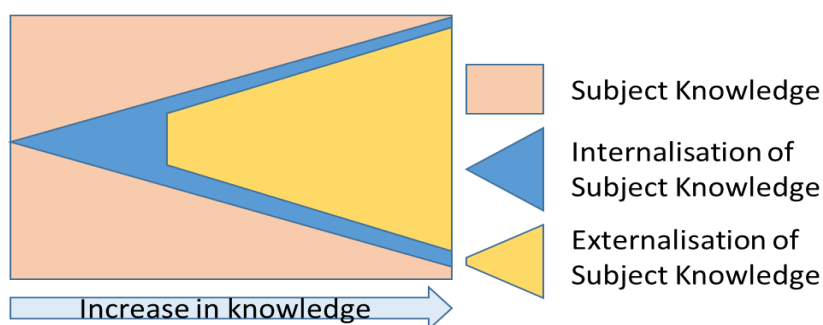


Figure 2.1 Internalisation and externalisation during knowledge building

3. Methodology and framework

In studying the impact of a changed curriculum, I found that the best-fit methodology was a case-study [12] due to the limitations around the time frame of the study and the replicability of the study [13]. The data collection was based on Creswell's [12] parallel, mixed methods design, and the data was interpreted under the theoretical framework of Activity Theory [14] through a pragmatic, critical-evaluative lens [12].

4. Data and analyses

The case study above, called for the sourcing of data from the graduates of the diploma, the lecturers and the documents available. Of the 15 lecturers on SIICT subjects, 12 were available for observation and interviews.

4.1 Observations

Observations of the lecturers presenting SIICT classes in the computer laboratory were conducted using two video recorders. Amongst other observations, the videos were analysed for length of time that artefacts were used during the lecture period. The cumulative time that the artefact was used by the lecturer was used as an indicator of DiCoT and as a reference for internalisation and externalisation.

4.2 Interviews

The interviews with the lecturers were analysed for evidence of co-operative teamwork, the creation and the use of common artefacts and the use of jargon and key words indicating externalisation of knowledge. The results of the data were then compared with the service records of the lecturers in the subject in which they were teaching and in the length of time that they had been teaching the SIICT subject.

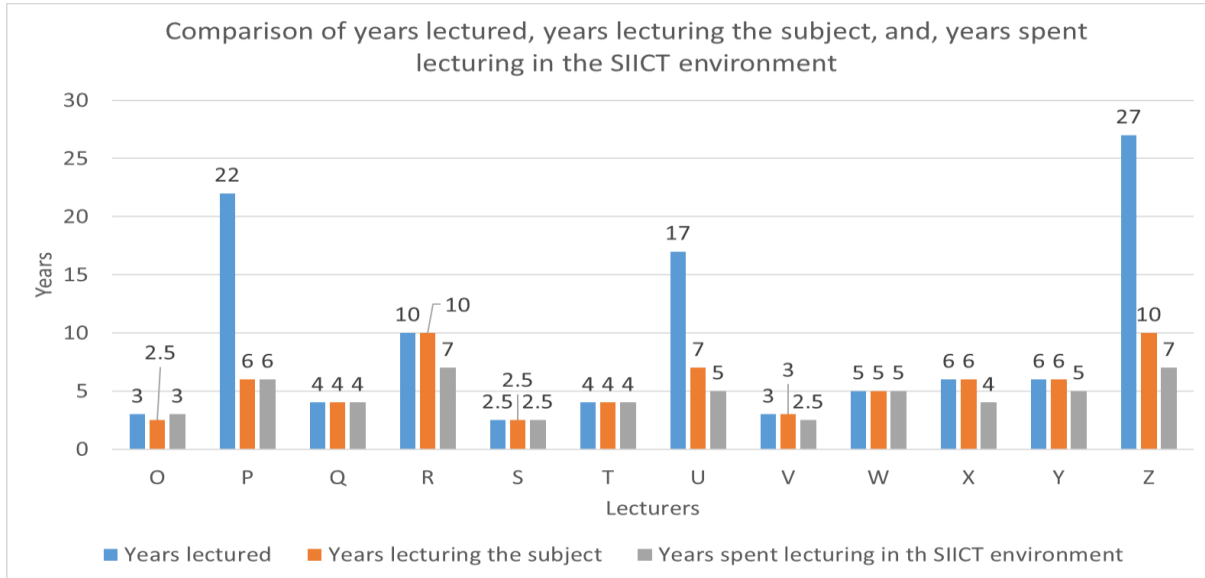
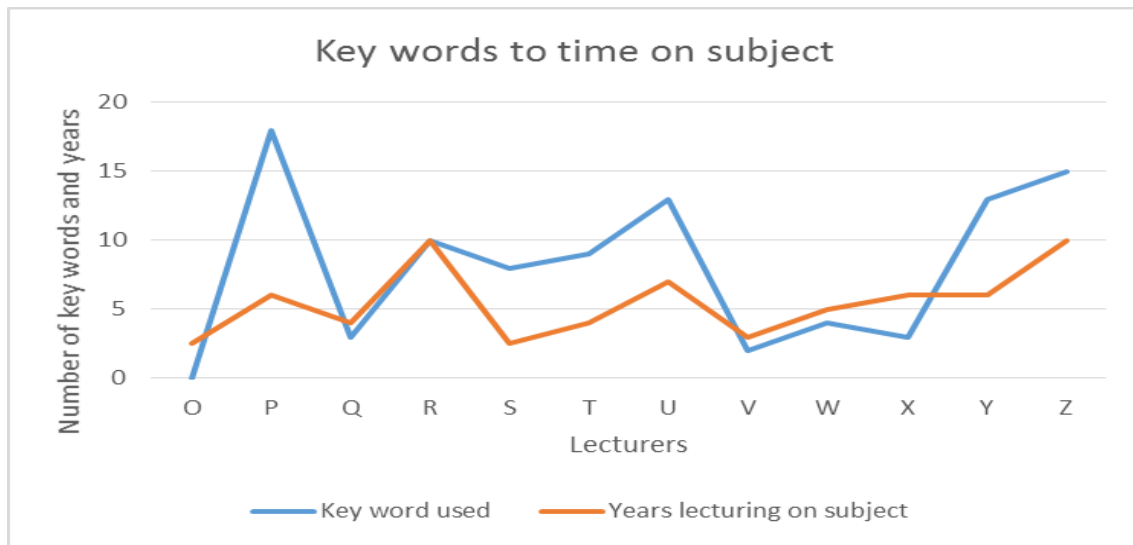


Figure 4.1 Lecturing experience

Key-words usage was based on the lecturers' usage of accounting- and costing-related jargon, their use of Accounting technology jargon and their use of ICT related jargon. The number of usages of these words was then superimposed on the number of years subject-specific experience the lecturer had. The outliers (lecturers P, S, T and U) were identified as new lecturers with strong ICT backgrounds.

Figure 4.2 Key words and lecturing experience



The interviews also revealed that the lesson plans were developed as a group in 80% of the instances and in 80% of the instances, the lesson plans were developed at the beginning of the course and re-evaluated the week before being presented. The lesson plans used in the laboratory were strictly followed by 75% of the lecturers, while 17% indicated that they used some discretion when applying the lesson plans and 8% used the lesson plan as a general guideline.

5. Outcomes and conclusion

Evidenced in the case study was the co-operation within these teams which lead to the creation of common artefacts. The artefacts were seen as an important document, the content of which was to be strictly applied in the SICT computer subjects. It was empirically shown that lecturers with a longer

involvement with a subject (greater internalisation) expressed that knowledge in the use of key words, phrases and jargon (greater externalisation) than their colleagues with lesser experience. Efficient and effective teamwork enhances and strengthens the reciprocal interchange of information within which cognition is shared [9] leading to enhanced internalisation and externalisation of the subject matter [4]. This theory of DiCoT show that the artefact use is diminished through use and the gaining of knowledge (Figure 5.1). Internalised knowledge becomes personalised knowledge which is then externalised (Figure 5.2).

Figure 5.1 Distributed cognition and the use of artefacts

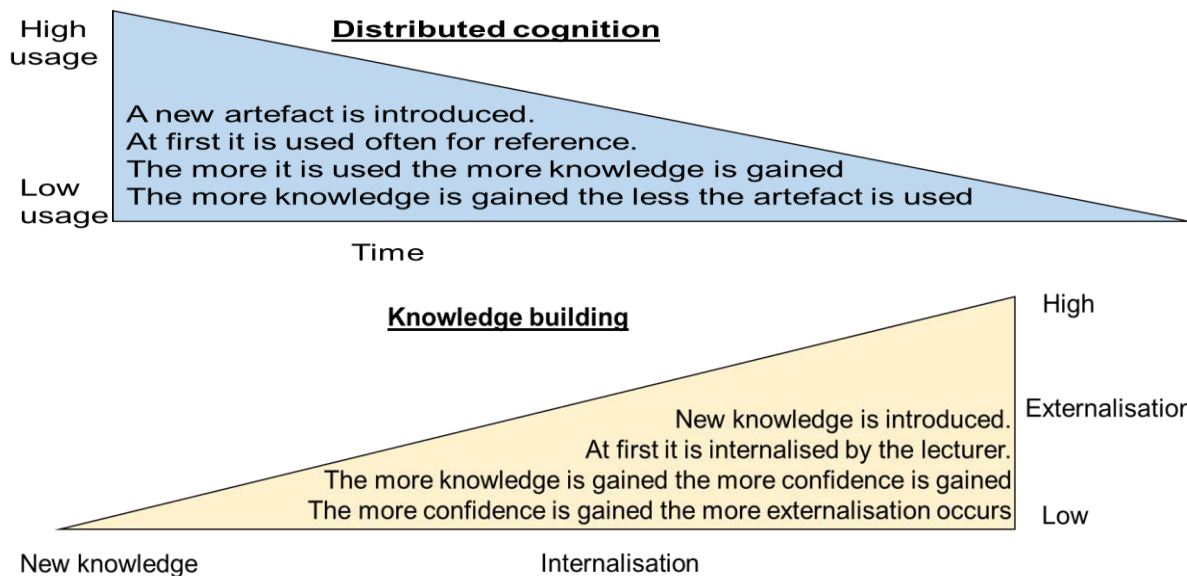


Figure 5.2 Knowledge building by internalisation and externalisation.

5. Contribution

One of the contributions of the case study shows that the distributed cognition has evidenced the outcome, and supported the theory, that there is a correlative relationship between DiCoT and Internalization and Externalization of subject matter, which has been termed “Knowledge building through DiCoT” in the paper. Evidenced in the study is the importance of DiCoT and the role that the team played in the creation of common artefacts. DiCoT ensured that the experienced lecturers’ input guided the lesser experienced and helped with their knowledge building through the artefacts thus created. This contribution by the lecturers is seen as one of the key factors that has driven the success of the new diploma.

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