

The time course of learning - how does the length of the cooperative placement affect the learning experience?

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Abstract

Amongst cooperative education programmes there is great diversity in placement length and structure. These parameters appear to be driven as much by timetabling and regulation demands as pedagogical reasons. Little research has been published to provide evidence supporting a particular structure on learning grounds, particularly from a student's perspective.

A written questionnaire (n=42) and in-depth follow-up interviews (n=7) were used to explore the perceived impact on student learning of the non-continuous (2 days per week) and two-semester nature of the sport and recreation cooperative education programme at Auckland University of Technology (AUT). In addition to workplace activities the students in this programme design and complete a project that is beneficial to their organisation. The influence of this project work on student learning is also examined.

Content analysis of the data indicated that the 350 hours spent in the workplace over 2 semesters was important for relationship building and the development of trust. The findings indicate that the students' learning changed over time in the placement. Students felt they learnt more in the second half of the placement as they moved from doing simple tasks and became involved in more complex tasks and thinking. Most students responded in favour of the non-continuous nature of the placement.

We conclude that the 350 hours of placement contributes to students developing their own meaning of practice in sport and recreation, and that greater learning may occur with more time in the workplace, and the use of tools such as projects that enhance students understanding of their workplace community.

Introduction

There has been debate amongst the cooperative education community in recent years about the nature of learning outcomes and processes that students experience while undertaking work placements (Parks, Onwuegbuzie & Cash, 2001). Recent research (e.g. Eames, 2000) has shown that students believe they learn on placement in a multitude of areas including technical knowledge and skills, communication and interpersonal skills and understanding about the work

culture. Ongoing research is suggesting that the social and cultural environment of the workplace (Lave, 1991; Salomon & Perkins, 1998) plays a key role in student learning.

Amongst cooperative education programmes there is great diversity in programme, and in particular placement, structure. The structure of the placement has often been driven by timetabling and regulation demands rather than pedagogical reasons. Little research has been published to provide evidence supporting a particular placement structure on learning grounds.

There has recently been debate at the Auckland University of Technology (AUT) about the placement structure in the Bachelor of Sport & Recreation (BSR). This paper describes a small research project that investigated BSR students' perceptions of their learning on placement and how the structure of the placement programme at AUT impacted upon that learning.

Context of the study

The BSR is a three-year programme designed to prepare students for careers in the areas of sports science, sports management, recreation, fitness, physical education or outdoor tourism. During their final year the BSR students complete 600 hours of cooperative education where work and learning are integrated through the development of partnerships between the university, the student and a sport and recreation organization.

Cooperative education papers (Cooperative 1 and Cooperative 2) are structured so that the student spends the equivalent of two days a week during the two semesters of the academic year within one organization. During Cooperative 1 the students complete 200 hours of workplace activities and 100 hours is allocated as academic time for the students to reflect on and critically analyse their experiences as well as to design a project that is beneficial to their organization. During Cooperative 2 the students are required to complete 150 hours in the workplace and the remaining 150 hours allows time for the students to complete, evaluate and present their industry related project.

Industry placements include national or regional sports organizations (e.g. NZ Soccer, Auckland Rugby Football Union), community recreation and fitness centres, outdoor tourism operators, schools (Physical Education departments or sports coordinators), regional sports trusts and sport performance centres. The students are supported in their learning experience by an industry supervisor and an academic supervisor from the university.

Methodology

A case study approach (Merriam, 1988) was used to investigate the learning experiences of the cooperative education students from the BSR at AUT. The research consisted of two stages. In the first stage a written questionnaire was given to all students who had completed the cooperative education programme in 2002 (n= 48). The questionnaire was anonymous and included both open-ended questions and scaled responses. Students were asked to indicate what they had learnt during their experience and to comment on factors and influences on their

learning. The questionnaire also asked for comments on the non-continuous structure of the programme and whether they felt the number of hours were appropriate. Other questions focused on comparing the way they learnt and the amount of learning between cooperative 1 and cooperative 2. In addition the students were provided with a grid and asked to draw a learning curve that related the amount of learning to the time course of the experience.

The second stage involved in-depth semi-structured interviews (Cohen, Manion, & Morrison, 2000) with 7 volunteers from the cohort. The questionnaire responses were used to gain indicative data that informed the preparation of the interview guide. All interviews were audio-taped and transcribed. Informed consent was gained in writing from all participants. Ethics approval was gained from the AUT Ethics Committee. Pseudonyms have been used in this paper in reporting student comments. The questionnaire responses were analysed using descriptive statistics where appropriate. The interview transcripts were content analysed in an interpretive manner.

The learning curve was analysed using Simpsons Rule to determine the area under an irregular curve (Bajpai, Mustoe & Walker, 1974). Each curve was divided into 13 equal segments and the height of the curve at each segment was measured. The following equation was used to determine the area for each curve for Cooperative 1 and Cooperative 2:

$$A_{(Coop\ 1)} = (H_0 + (H_1 \times 4) + (H_2 \times 2) + (H_3 \times 4) + (H_4 \times 2) + (H_5 \times 4) + H_6) / 3$$

$$A_{(Coop\ 2)} = (H_6 + (H_7 \times 4) + (H_8 \times 2) + (H_9 \times 4) + (H_{10} \times 2) + (H_{11} \times 4) + H_{12}) / 3$$

The area for Cooperative 1 was then compared to the area for Cooperative 2 using a paired T-test with an alpha level of 0.05. The heights at each segment were averaged for all curves to construct the composite curve in figure 1.

Results

Forty-eight students completed the cooperative education component of the Bachelor of Sport & Recreation in 2002. From this cohort 42 completed the written questionnaire. The majority (90%) were in the 20 –24 age group and the gender was balanced (22 female, 20 male). The cooperative experiences of the respondents were undertaken within a range of organizations within the sport and recreation industry (Table 1).

Table 1. Industry placements for the BSR cohort in 2002

	Number
Sports Performance centres	12
Secondary schools	10
Outdoor recreation/tourism	6
Recreation/ fitness centres	5
Regional/national sports	5
Regional Sports Trusts	4

Only 15 students received any payment for their work activities. This is consistent with the nature and constraints of the sport and recreation industry as 31 organisations were identified as non-profit or community funded.

Student learning

The questionnaire analysis affirmed that the students were achieving the learning outcomes that were expected in the cooperative education papers. Students indicated they had learnt oral and written communication skills, time management, reflective thinking, critical analysis, teamwork, problem - solving and research skills. The interview responses reinforced these key areas as well as highlighting that the students gained confidence and leadership skills along with a range of practical and technical skills relevant to their specific work activities.

The interviews confirmed the importance of the development of soft skills. Michelle commented that “They are the things that you can carry over into anything. They are the things that make you better in the workplace - no matter where you are, they are more important”. In particular time management was said to “far outweigh anything” (Geoff). Many students (17/42) felt that the project had a major influence on the development of time management skills. They commented on the importance of planning, the need to be organised, to set goals and objectives and to allow time because they often had to rely on others. Undertaking the project also facilitated personal development by providing an increased responsibility, developing confidence and the use of initiative. Communication skills were developed through the process of formal report writing and the presentation of their projects to industry and academic staff.

The students also acknowledged that by undertaking the project they developed an understanding of the research process and associated research skills. Students also commented in the questionnaire that the “theory was related to the practical situation” and “demonstrated the benefits of research to the industry”.

People interactions were highlighted as a major influence on student learning especially the effect of academic and industry supervisors. Academic supervisors were said by many to provide motivation, encouragement, guidance and feedback that “strengthens your work – encourages you to do more” (Susan).

Time in the workplace

Sixty seven percent (28/42) felt that the total of 350 hours in the workplace was either the right amount or not enough time. Comments from the questionnaire and interviews highlighted the importance of needing enough time to build relationships. For example one student said, “Time was right, any less and I feel we wouldn’t blend in with the team members as well”, and another commented “I think you get a better view. You get to know more people, you get to interact with more people in a year”. This indicated the importance of the time in the workplace to engage in social interactions and to become part of the community of practice (Lave & Wenger, 1991).

Students also noted the time needed to build trust and learn in the workplace. Susan commented that “If it was shorter you wouldn’t get so much responsibility because you have to build trust a bit- they’d have to learn about you and I think it is quite important to have a year to just learn

about each other.” In Susan’s placement, as in many others, the seasonal nature of the sector was also a factor, as she noted that “new opportunities arise over the course of a year as you go through the different seasons”. Similarly Michelle felt that her placement “gave me deeper learning- with all the presentation skills and communication skills- like comparing it with doing it over one semester you would still get it all done but you wouldn’t - it maybe more rushed you might have more time but some processes take along time”.

However fourteen students (33%) felt there were too many hours. Questionnaire responses included that “it made it difficult to hold down a part time job”, and “it was difficult to set objectives that would efficiently utilise the hours for learning, to balance academic and industry requirements. Time is not the issue, the utilisation to maximise learning is the issue”. There was no relationship between the students’ responses and whether they received payment for their work activities or whether they had previously worked fulltime for 6 months or more.

The responses from the questionnaire were mostly in favour of the current non - continuous or part-time placement structure. Alison commented that “ comparing it with doing it over one semester you would still get it all done ...it maybe more rushed... you wouldn’t have as deeper learning as you would just doing it gradually over the year”. Students felt that the placement structure gave enough time to still concentrate on university studies while getting a ‘feeling’ for the organization. The structure also provided a choice when the student undertook their work placement, which enabled them to have flexibility for other university and personal activities. Not all students utilised two set days per week, particularly in the sports performance area, where 7 of the 12 students had no set structure. Students were able to spread the work activities over the week and if necessary, to do more work in one week and less in another. However it was highlighted that the students must be aware of the need for good time management skills.

However 3 of the 4 participants that were placed in the regional sports trusts would have preferred to be full time or to do the 350 hours in a block in one semester – to give more focus on industry experience.

Relationship between learning and time

Fifty seven percent of the students (24/42) indicated the way they learnt changed over time. Responses from the questionnaire highlighted that students learnt more work related skills in Coop 1 but more work related knowledge and research skills in Coop 2. Students developed more independent learning and initiative during Coop 2 when they were undertaking their project work. The relationship between learning and time was described by one student as “Observation first then hands on practical”, and another as “I was thrown in the deep end and learnt a hell of a lot. One student indicated that learning from others in the workplace was important in their comment that “The way I learnt first was just going out and doing it and then I probably looked at how others were doing it”.

Amount of learning

The students were asked to draw a curve to indicate the amount of learning over the time course of the placement. A composite of the learning curve for all students is shown in Figure 1.

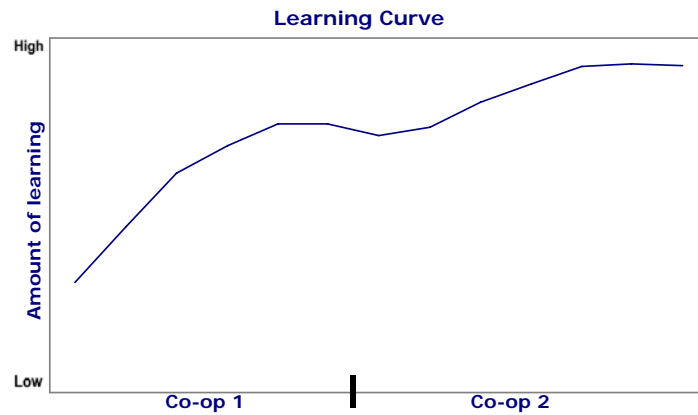


Figure 1. Amount of learning over time.

This curve indicates rapid learning at the beginning of the placement and then a further increase in the amount of learning during the first half of Coop 2. The analysis of the area under the curve determined that the amount of learning in Coop 2 was significantly greater than in Coop1 ($p=0.000$). This is consistent with a similar question in the questionnaire (Table 2).

Table 2. Comparison of the amount of learning between Co-op 1 and Co-op 2.

Amount of learning	Number
Co-op 1 > Co-op 2	9
Coop 1 < Co-op 2	21
Coop 1 = Co-op 2	12

Examining the individual curves, 13 students did not follow the same overall trend as the composite curve. However the shape of the curve drawn was consistent with their questionnaire responses. Student comments did not indicate a clear trend as to possible reasons for the amount of learning in Coop 2 to be the same or less than for Coop 1.

Summary

The study findings indicate that the 350 hours students spent in the workplace over two semesters was important for relationship building in the workplace. This points to a need for students to develop social interactions with their workmates that may facilitate their enculturation (Hennessy, 1993) into the workplace community of practice (Lave & Wenger, 1991).

The findings also indicate that the students' learning changed over time in the placement, as they moved from doing simple tasks and became involved in more complex tasks and thinking,

suggesting that they were learning through their participation (Rogoff, 1995) in the activities of the community.

The findings suggest that students learn more in the second half of the placement at a time when they are undertaking an independent project at work. This indicates that the role of the project may be significant in students' understanding of their work placement.

We conclude that the 350 hours of placement contributes to students developing their own meaning of practice in sport and recreation, and that greater learning may occur with more time in the workplace, and the use of tools such as projects that enhance students understanding of their workplace community.

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References

- Bajpai, A.C., Mustoe, L.R., & Walker, D.(1974). *Engineering Mathematics*. England. John Wiley & Sons Ltd. (p439)
- Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education* (5th ed.). London: Routledge-Farmer.
- Eames, C. W. (2000). Learning in the workplace through co-operative education placements: Beginning a longitudinal qualitative study. *Journal of Cooperative Education*, 35(2-3), 76-83
- Hennessy, S. (1993). Situated cognition and cognitive apprenticeship: Implications for classroom learning. *Studies in Science Education*, 22, 1-41.
- Lave, J. (1991). Situated learning in communities of practice. In L. B. Resnick & J. M. Levine & S. D. Teasley (Eds.), *Shared cognition: Thinking as social practice, perspectives on socially shared cognition* (pp. 63-82). Washington, DC: American Psychological Association.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Merriam, S. B. (1988). *Case study research in education*. San Francisco: Jossey-Bass.
- Parks, D. K., Onwuegbuzie, A. J., & Cash, H. (2001). Development of a Measure for Predicting Learning Advancement through Cooperative Education: Reliability and Validity of the PLACE Scale. *Journal of Cooperative Education*, 36 (1) 23-31
- Rogoff, B. (1995). Observing sociocultural activity on three planes: Participatory appropriation, guided participation and apprenticeship. In J. V. Wertsch & P. del Rio & A. Alvarez (Eds.), *Sociocultural studies of mind* (pp. 139-164). Cambridge, MA: Cambridge University Press.
- Salomon, G., & Perkins, D. N. (1998). Individual and social aspects of learning, *Review of Research in Education* (Vol. 23, pp. 1-24). Itasca, IL: F.E.Peacock.