

# **Trends in research methods and approaches in cooperative and work-integrated education research**

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This paper investigates 15 years of articles published in Asia-Pacific Journal of Cooperative Education (APJCE) to determine trends and changes within methods and research approaches in cooperative and work-integrated education (CWIE). Coll and Chapman (2000) noted that, at that time, quantitative research methods dominated in cooperative education research, contrary to what was common practice in other educational research areas. It is our view that since 2000 that there has been a shift towards different research approaches in CWIE. The aim of this research is, therefore, to review research practice reported in APJCE in order to identify any trends or patterns in research approaches. The review included over 150 publications, where journal articles were separated by type (e.g., research articles, topical discussions, best practice). For research articles, analyzes included methodology, research approach, data collection instrument, method of analysis, and other research-related components. The findings indicated a trend in CWIE research towards using a wider range of research approaches with a greater number of phases and triangulation points within a research project. It is argued that it is no longer sufficient to think of CWIE research as being either qualitative or quantitative. Rather, there were an increasing number of research articles using mixed methodologies, with varying weightings towards either qualitative or quantitative, presenting virtually a continuum between the two main research approaches.

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## **Introduction**

Since the turn of this century, significant shifts have occurred in research in cooperative and work-integrated education (CWIE). Bartkus and Stull (1997) analyzed the cooperative education (co-op; here forth seen as a form of CWIE) literature in 1997, describing it as sketchy, limited, and uncertain, with a predominant focus on best practice, essentially echoing earlier views expressed by Wilson (1988). Bartkus, Stull, and Higgs conducted another assessment of the research scene for the 2004 and 2011 editions of the International Handbook for Cooperative and Work-Integrated Education. Bartkus and Higgs (2011) described the literature as stronger and more developed than when the assessment was conducted in 2004 (Bartkus & Stull, 2004). A significant indication of this shift can be observed by the growth of literature published in Asia Pacific Journal Cooperative Education (APJCE). This growth, and the nature of the publications, since 2000 indicates a maturing of CWIE research (Zegwaard, 2012).

Coll and Chapman (2000) commented that the co-op research was dominated by quantitative methods and went on to encourage the wider use of different research approaches. This view was echoed four years later by Eames and Cates (2011). Coll and Chapman advocated the merits of more holistic researcher approaches (e.g., mixed methodologies) of using both quantitative and qualitative research methods. The absence of holistic approaches to CWIE research in a teaching context also concerned Grainger (2001) and led to the recommendation for greater use of qualitative, or interpretative, research methods. The relationship between qualitative

methodology and interpretative philosophy is well documented. Qualitative research draws heavily on interpretation, that is, interpretation by the participants, researchers, and then the readers of the reported research Stake (2010), and relates closely to interpretative research, which is concerned with an understanding of subjective meaning (Bryman & Bell, 2011).

By 2009 there was sufficient published co-op research to allow Coll and Kalnins (2009) to conduct a critical review of articles described as qualitative research. The review identified 141 articles from four journals, from which a systematic analysis was undertaken. Coll and Kalnins commented that interpretive (qualitative) research was a significant part of the cooperative education (CWIE) research landscape and numerous interpretive co-op research publications were available in the literature. They also commented about the diversity of interpretative studies, their nature and scope, the variety of research methods, and the range of co-op programs studied. Particular note was made of “the complexity of the learning contexts or situations (i.e., the dual context, meaning that both workplace and on-campus learning occurs), and type of issues investigated (e.g., leadership, equity and migrants’ integration into the workforce (Coll & Kalnins, 2009, p.3)”. Most qualitative studies used interviews as the main data collection instrument, which Coll and Kalnins suggest was the most appropriate for more complex topics studied.

One specific form of research noted by Coll and Chapman (2000) and Grainger and Taylor (2004) is action research. This method focuses strongly on reflection of one’s own action, using a cyclical approach between reflection and action to improve a practice (Cohen, Manion, & Morrison, 2011), well suited to collaborative research. Along with case study research and ethnography, action research is often listed as an effective method in educational research (Arthur, Waring, Coe, & Hedges, 2012; Atkins & Wallace, 2012). A particular advantage of these research approaches is that these are easily useable within the everyday work context of a CWIE practitioner.

The aim of work reported in this paper was to report on a review of research approaches used in published research articles in APJCE. The intent is to identify if the call by Coll and Chapman (2000) for more qualitative research has been fulfilled, as well as identify trends in recent research approaches. The work reported here is preliminary findings of this review work and is subject to ongoing work.

## Methods

All published articles from 2000 to 2013 in APJCE were analyzed using a document analysis and systematic evaluation approach (Bowen, 2009; Bryman & Bell, 2011). Articles were classified firstly as either research, topical, or best practice articles. Articles self-described as ‘case studies’, a term often used to describe either a research approach or a best practice article, were analyzed to determine if they were research articles. Research articles were then analyzed to identify: methodology type or research approach, data collection method, and method of analysis. The systematic procedure involves identifying, selecting, appraising, and synthesizing data. Where possible, the terminology used within the article was used in the analysis of this research. If qualitative data had been obtained, content analysis was used to obtain results.

A pilot review was undertaken using three issues in APJCE, which resulted in some modification to the review method. The findings section for each article was also reviewed to ensure that the findings were supported by the data description and to obtain any further information about data analysis.

When the methodology was not identified in the article, a judgement was made on what methodological approach was used. Multi-stage approaches were evident in many articles, which were also recorded. In total, 118 research articles were identified and analyzed (Table 1).

**Table 1.** Types of data collected from research articles published in Asia-Pacific Journal of Cooperative Education.

Data collected	Description of data collected
Topic or area of research	Keywords taken from headings, abstracts, and keywords section describing the topic/context of the research.
Stated methodology or research approach	The methodology or approach as either described by the authors of the journal articles, or determined by the authors of this article.
Research approach as identified by data collector *	Three generalized groups were used. Where possible the stated approach was categorized into one of three broad groupings: qualitative, quantitative, or mixed methods.
Number of stages of data collection *	This data was collected using the following guidelines: in a longitudinal study, the number of times data was collected from participants; in a multi-method study the number of groups from which data was collected and/or the number of data collection methods used.

Data collection methods	The name of each type of data collection method/s used.
Method of analysis	If an analysis method was described by the authors, this was recorded, using the terminology used by the author/s of the journal article. For statistical analysis, the type of statistics used in the findings was noted.
Sample size **	The number of participants used in the research was collected, along with response rate or number in population.
Sampling method **	As described by the author/s of the journal articles.
Part of a larger study or linked to other articles *	Whether the study was part of a larger project or linked to other articles.
Outcomes * & **	As determined by the author of this article. Coded as evaluation & recommendation; effect of WIL; confirmation of benefits or practice.

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Where: \* indicates an assessment was required by the data collector, and \*\* indicates data was collected but is not presented in this article.

## Results

Findings show an annual increase in the number of research articles published in the APJCE (see also Zegwaard, 2012), an increase in the use of qualitative approaches, a prevalence of multi-stage projects, wide use of interviews, self-completion questionnaires and secondary data, and varied approaches to describing qualitative analysis. Each of these findings in turn will be explained.

### *Increase in research articles in the Asia-Pacific Journal*

The annual number of articles published in the journal increased. To best demonstrate this, a comparison of the first three volumes (2000-2003) to the last completed year included in this analysis (volume 14, 2013) was undertaken (Table 2). These two sample sets present a similar number of articles published (21 and 23, respectively). Of the articles published in 2000-2003, 43% were research articles (9 articles), whilst in 2013 74% (17 articles) were research articles. The older sample set tended to be dominated by showcase or conceptual type articles.

### *Increasing use of qualitative approaches*

With the overall increase in research articles, there has also been an increase in the number of articles for all methods types (Table 2). When comparing the years 2013 to 2000-2003, the

number of articles using qualitative research methods had increased from two out of nine (22%) to seven out of 17 (41%). There had also been an increase in the number of articles using mixed methods, (although, this expression is seldom used by the authors of APJCE articles). Mixed methods first became evident in APJCE in 2005 and been increasingly used since then.

**Table 2.** Breakdown of research approach type for research articles in 2000-2002 and 2013.

	2000-2002	2013
Total number of articles	21	23
Number (%) of research articles	9 (43%)	17 (74%)
Number of quantitative	7	4
Number of qualitative	2	7
Number of mixed methods	0	5
Document analysis only	0	1

When considering all research articles from 2000 to 2013, 30% did not state what research approach or methodology was used. The concentration of these articles was mostly in the early years and particularly for articles using quantitative methods. In recent years, the methods description in research articles has become more specific and detailed. A wide variety of terms were used to describe the research method in qualitative research articles, such as, interpretative qualitative; exploratory qualitative, mixed method qualitative, naturalistic enquiry, case study, collective case study, auto-ethnography, and case study interpretivist-constructivist. Some quantitative research articles describe the research as a longitudinal study or a cross-sectional analysis. As seems common in other disciplines, there was a tendency of (incorrectly) using the terms ‘methods’ and ‘methodology’ interchangeably.

#### *Use of multi-staged research*

The majority (63%) of articles used multiple stages for data collection, with 41% having used two stages and 22% having used three or more stages. Multi-staged research tended to take the form of pre- and post-intervention evaluations, for example, student perceptual change over time, and longitudinal studies. These approaches also used data collected from different sources around the same topic, such as interviews, evaluations, academic statistics, and document analysis.

#### *Methods and research approaches*

The most common methods were the use of interviews supported by secondary data collection, such as surveys (i.e., using both qualitative and quantitative research methods; mixed methods). The use of open-ended questions (which provides qualitative data) were prevalent in surveys. Various forms of ranking/rating scales were used in 40% of the research articles, with Likert scales most common. Several articles described the use of focus groups, telephone interviews,

participant observations, and action research. Examples of two rather precise descriptions of techniques were ‘unstructured in-depth phenomenological interviews’ (Groenewald, 2003) and the use of ‘learning curve grid’ (Fleming & Eames, 2005). The learning curve grid was a self-assessment activity by students on the amount of learning that occurred over the duration of the work placement.

Analysis techniques of numeric data predominantly used frequency counts, percentages, and descriptive statistics (e.g., means, standard deviations or standard error, significance of differences). There were some examples of more sophisticated statistical techniques, such as, factor analysis, correlation, Cronbach Alpha, and the more comprehensive ANOVA and MANOVA statistical tests.

Descriptions of qualitative analysis were more varied, although essentially described a form of content analysis. The terms used to describe this included content analysis, thematic analytical approach, thematic analysis, theme identification, coding with assembling and triangulating, themes identification, and tabulation of results.

## **Discussion and conclusions**

The strengthening of the CWIE literature is reflective of greater research activity and improved research quality that has occurred in the past 20 years. The findings show that the portion of research articles published in APJCE using qualitative methods have increased, indicating that the call by Coll and Chapman (2000) to increase the use of qualitative research methods has been answered. Most qualitative research articles also used quantitative methods (i.e., mixed methods), providing a more holistic research approach as encouraged by Grainger (2001).

The process of analyzing of the research articles highlighted the difficulty of labelling research as either qualitative or quantitative. Many studies were mixed methods, such as quantitative methods of survey instruments as the dominant form, combined with the qualitative open ended questions or predominantly qualitative supported by other forms of quantitative data derived from numerical coding of reports of interviews. Despite clear evidence of the use of multiple types of research methods within a research project, very few authors described their research as either multi-method or mixed methods.

The variety of combinations of research methods found in multi-staged research projects was vast and likely demonstrates a willingness by researchers to consider multiple research approaches to understand complex educational issues in CWIE. This variety of combinations may perhaps also indicative of the range of different contexts researcher was undertaken in addition to the range of different educational backgrounds of researchers.

Some research approaches encouraged by Coll and Chapman (2000) are evident, such as the reliance of interviews as the main form of data collection. It is perhaps not surprising that

telephone interview data collection methods occurs because in the context of CWIE, where participants may be geographically distributed, it presents some obvious advantages. It is also possible that in CWIE research, telephone interviews occurs more often than reported.

It was interesting that the qualitative research approaches used in APJCE published research includes some not identified by Coll and Chapman (2000), such as analyzing work performance evaluation, use of student assessment items, study guides, cross-sectional or longitudinal studies.

## Conclusion

APJCE research articles and their respective research approaches have shown considerable shift over the 13 years towards an increase in research based publications and greater use of qualitative research methods. A variety of mixed methods approaches is increasingly common in APJCE literature. It was intended this paper would shed light on some research methods trends used by researchers and inform other researchers on the commonality of these approaches. Further research is required to fully understand other trends in research methods and around publishing. It is the intention that the research project reported in this paper will expand further and report on these trends.

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