

Journal Content Analysis of ETR&D and the Journal of Educational Technology of Korea

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The study analyzed the topics and the types of the selected articles from the 20-year-old Journal of Educational Technology(JET), flagship journal of the Korean Society of Educational Technology. Further the results were compared with those of the Educational Technology Research & Development journal. Results indicate that the JET has grown in terms of quantity and quality since its birth 20 years ago. The JET seems to be independent as a young adult. Some issues and concerns were also identified: The articles of the JET are more inclined to Experimental design in terms of research type, and to Design in terms of research topic. Balance across Types and Topics needs be kept for long-term, healthier growth. The emergence of e-Learning and high technology of Korea offered opportunities to the field. However, the monopoly of e-Learning that consumes most of the limited space of the JET raises a red flag. More balanced and quality-oriented endeavors were suggested for another 20 years coming.

Keywords: Journal Content Analysis, Journal of Education Technology(JET), Educational Technology Research & Development Journal(ETR&D)

Introduction

Background

The state of the refereed journals is frequently indicative of the status of the research in that field. The field of educational technology, whenever it encountered critical moment to

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make decisions, has looked back and learned from the past by analyzing major journals (Dick & Dick, 1989; Klein, 1997). The Korean Society of Educational Technology (KSET), the first professional organization of educational technologists in Korea, has been playing a major role to learn, practice, and share the knowledge in this young field. This year KSET celebrates its 20th anniversary. Now is time to look back at the Society’s history in order to prepare for the future.

The purpose of the study is to address the history of the research in educational technology in Korea by comparing the Journal of Educational Technology (JET), flagship journal of KSET, with the Educational Technology Research & Development (ETR&D) journal. The result of the study will serve as a guide for educational technologists from Korea and the USA in navigating toward future research and practice.

The Journal of Educational Technology

The Korean Society of Educational Technology (KSET) began publishing the JET in 1985 to “promote and encourage scholarly work of an empirical and theoretical nature that relates to educational technology in Korea”(Lee, 1985. p.1). Since then the JET has been published for 20 years with 408 items presented in 21 volumes. Currently the journal is published four times a year and has an annual subscription rate of over 800. More detailed information on the quantity growth of the journal is shown below at <Table 1>.

Table 1. Growth of the JET

Year	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05
volume	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
# issues	1	1	1	1	1	1	1	0	1	1	2	2	2	3	3	4	4	4	4	4	4
#article	10	8	10	11	8	12	11	15	11	14	19	28	24	54	54	69	30	51	51	42	42

Method

Sample Articles

For the comparative purpose of the study, 228 articles from both journals were selected for study samples. All of the articles published in the two journals are from the years of 1985-1986, 1995-1996, and 2003-2004. The JET does not have Book Reviews and

International sections, therefore only articles from the Research Section and Development Section of ETR&D were included in this study. In total 228 articles from both journals were included in this study(See Table 2).

Table 2. Number of Target Articles

	Early Stage (1985~1986)	Middle Stage (1995-1996)	Recent Stage (2003-2004)	Total
JET (vol #)	18 (1-2)	42 (11-12)	50 (19-20)	110
ETR&D (vol #)	34 (33-34)	42 (43-44)	42 (51-52)	118

Coding Criteria and Descriptors

Author

For information about authors, the name, gender, and information of the affiliation of the first author and number of co-authors were analyzed. Type of the first author's affiliations were categorized as: 1) Academia (Higher Ed); 2) Research Institute (non-university sponsored); 3) K-12 schools; 4) Private Organizations (& Businesses); and 5) Public Organizations (& Government).

Type

A 9-category approach, a revised version of Dick and Dick's 6-category classification, was utilized for the analysis of the Type of the content. The category's 9-descriptors are: 1) Literature review: a summary of literature, sometimes a critique and sometimes as a statement of the state of the art; 2) Methodological article: a new model or procedure for carrying out a technical activity; 3) Theoretical article: one which primarily draws upon and contributes to the theoretical literature in the field; 4) Empirical research/Experimental; 5) Empirical research/Qualitative; 6) Empirical research/Survey; 7) Descriptive study: a presentation of information about a particular program or event, with little or no use of data; 8) Evaluation study: a representation of information to describe the effectiveness of a particular program or method usually in an applied setting; and 9) Professional article: a description of topics dealing with the profession of instructional technology, such as determination of competencies or descriptions of internship program(Dick & Dick, 1989. p.82).

Topic

For Topic, this study employs AECT's 5-category classification, which includes 1) Design (ISD, message design, message design, instructional strategies/methods, learner characteristics); 2) Development (media utilization, diffusion of innovation, implementation/institutionalization, policies/regulations); 3) Management (project management, resource management, delivery system management, information management); 4) Evaluation (problem analysis, criterion-referenced measurement, formative evaluation, summative evaluation); and 5) Others (introduction of ideas, learning environment, learning theories) (Seels & Richey, 1994).

Citation

Today's academic communities are regarded as a knowledge sharing network. In this network, each article serves as the nodes that are linked with each other by cross-citation. A brief cross-citation analysis was conducted to find out how the two journals were interrelated and to see how ETR&D helped the infant journal grow into an independent and productive youth. For this purpose, the citations, both within and between the two comparative journals and countries, were examined.

Coding Process

The researcher and his assistant served as raters for coding and indexing categorical data. The researcher earned his PhD from one of the major Instructional Systems programs in the USA and has been working as an instructional designer and researcher for more than 15 years. The research assistant has a master's degree in educational technology and is pursuing for a doctoral degree. To enhance inter-rater agreement, the researchers studied the coding criteria and descriptors carefully, conducting the raters' workshops two times with actual samples that were used for Yang and Chung's work (Yang & Chung, 2005). Overall Cohen's Kappa of the final coding reached 0.75. Data coded were entered into SPSS 10.1 (Korean version) for relevant statistical analysis.

Results

Author Categories

First Author's Basic Information

In ETR&D, 106 unique first authors contributed 118 articles whereas 98 unique first

authors contributed 110 articles in JET. More male authors were seen in ETR&D (female 59.3%, female 33.1, unidentified 7.6%) while the JET was represented more by female authors (55.5%, male 44.5%). The level of collaboration was measured by the number of co-authors. The average number of coauthors for JET was 1.34, which is small than ETR&D's 2.27. However, as the community grows, the number of collaborative works has increased from 1.00 to 1.66 (See Table 3).

Table 3. Average Number of Authors

	Early	Middle	Current	Total
JET	1.00	1.10	1.66	1.34
ETR&D	2.06	2.10	2.62	2.27

In its early stage, most pieces shown in the JET dealt with introductory and philosophical issues. As the JET matured, the contributors had opportunities for applying knowledge and skills learned to instructional design projects and wrote up articles. Design and development projects usually involve more than one educational technologists. Korea, a country with high-end computers and Internet environment, requires educational technologists to assume active roles in high-tech instructional solutions, providing ample opportunities for co-working in intra-disciplinary, intra-institute projects. In this instructional design environment of Korea, more co-authored pieces were produced than in years past.

First Author's Affiliation

Most contributors to the JET are from academia. However, when compared with ETR&D (94.9%) the portion of this category was smaller (81.8%). The remaining 18% of the JET's content was submitted by authors from Research Institute such as KEDI (Korea Educational development Institute) and private practitioners. Korea's fast growth in the computer and telecommunications industry provided the field with a rich environment for applying theories and skills. Industrial leaders like Samsung, POSCO, and Korea Telecom with full-time educational technologists with higher-level degrees were able generate practical articles.

However, as the JET required a stricter research methodology and more rigorous approach for acceptable articles in order to keep its high quality, the number of the professional researchers' contributions was getting larger. During recent stage (2003-2004), the portion of authors coming from academia reached 88%, rapidly catching up with that of ETR&D (95%) (See Figure 1).

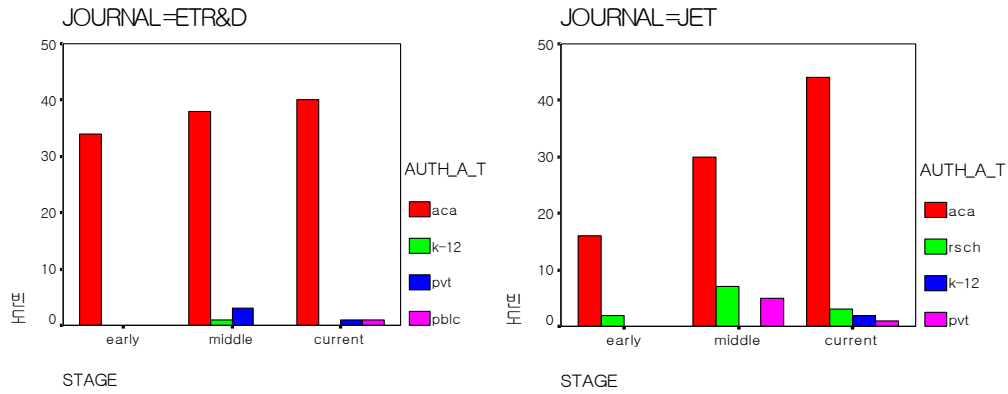


Figure 1. Comparison of Type of First Author Affiliations in Both Journals

Frequently seen names of the affiliations of the first authors are shown <Table 4> below. In Korea, the largest – in terms of student enrollment - and oldest academic institute is Ewha Womans University, followed by Hanyang University. Therefore, especially in early stages, these two institutes played major roles in Korea. As KSET matures and the number of universities with educational technology programs increases, the readers of the JET will enjoy a greater variety of articles from many institutes with diverse academic and cultural traditions.

Table 4. Affiliations with First Authors in Both Journals

	Early Stage	Middle Stage	Current Stage
JET	4 pieces(Hanyang U.), 3pieces(Ewha Womans U.), 2pieces(Korea U., Korea Educational Development Institute(KEDI))	5 pieces(KEDI) 4pieces(Seonal Nat'l U., Ewha Womans U.), 3pieces(Hanyang U., Samsung HRD Center), 2pieces(Korea Telecom, Kyunghee U.)	6pieces(Seoul Nat'l U.) 3pieces(Andong Nat'l U., Chonnam Nat'l U., Hanyang U., Mokwon U., Korea Nat'l Open U., Kyeongin Nat'l U. of Edu, Kyunghee, Kwnagju Taebong Elem. School)
ETR&D	3 pieces(Ohio State) 2pieces(FSU, Harvard, PSU, U.of Colorado, U. of Denver, U. of Minnesota, USC, U. of Western Ontario(Canada))	3 pieces(FSU, UGA) 2pieces(ASU, IU, PSU, U.of Memphis, U.of Minnesota, McGill U., James Cook U(Canada))	4 pieces(Open U. of Netherlands) 2 pieces(Iowa State U., PSU, U.of Missouri, U. of Twente(the Netherlands))

Type of Study

In terms of research Type, the JET invited a variety of types of studies during last twenty years while ETR&D showed consistency in its assortment of types of research. One of interesting findings in Type study was the portion changes across the stages of the Empirical (experimental) and Theoretical pieces. The number of Empirical (experimental) type studies on the JET grew rapidly; from 5.6% (early), 31.0% (middle), and 44.0% (recent). The trend is sharply contrasted with that of ETR&D. During the same period of time, the portion of this type of research was decreasing in ETR&D from its early, middle, and recent stages as 47.1%, 40.5%, and 33.3%, respectively. The field of educational technology should be based more on empirical studies than non-empirical/philosophical alternatives (Driscoll & Dick, 1999). Furthermore, when considering that many researchers addressing the naturalistic and formative type of methods are more preferable to controlled situations like randomized experimental design(Driscoll & Dick, 1999; Lee, 2005; Richey, 1998), this trend seems problematic.

In both comparison journals the portion of Evaluation type of research are growing. In ETR&D, Evaluation studies grew from 2.9%, 9.5%, and 16.7% while in JET the proportion increased from 0%, 2.4%, and 8.0%. As an application-oriented discipline, our colleagues from the US and Korea seem to have worked harder to find more empirical evidences of their solutions. The portion of Evaluation studies may not be large enough, but we have exerted more efforts than before.

The proportion of Literature reviews in the JET was relatively large. In its early stage (72.2%) and middle stage (31.0%) before it shrank down to 6.0% in its recent stage. In its

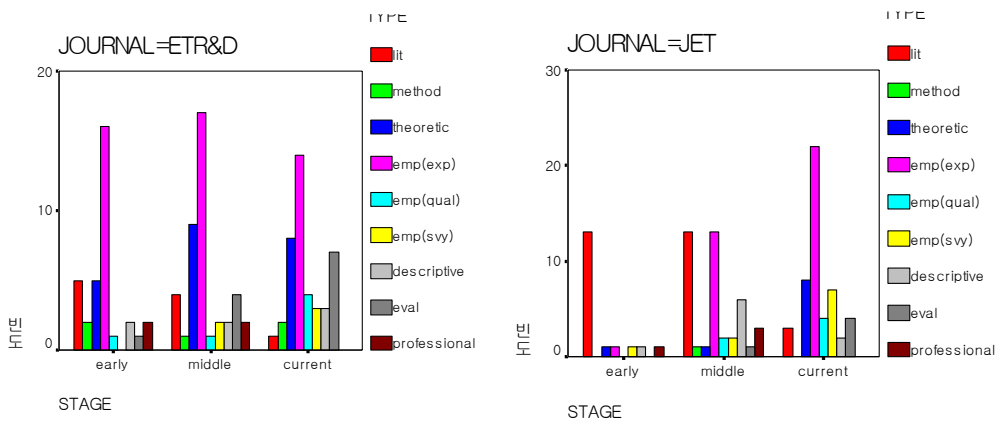


Figure 2. Type of Research in Both Journals

early stage, the JET needed basic ideas and theories of the field, and articles that reviewed and introduced then state-of-the-art literature were appropriate response to the needs. Ten years later, because of the inflow of the Constructivist influence and the unseen Web-based Instruction, the portion of Literature reviews was still one of the largest pieces. In recent stage where most of our colleagues in Korea were busy in Designing e-Learning, the proportion of Literature review went down to 6.0%, which is about the same with ETR&D's average 8.5%.

Topic of Study

During last twenty years of the JET, Design topic has gradually increased whereas Development pieces decreased. The number of Design topic studies of the JET increased rapidly; from 17.6% (early), to 47.6% (middle), and to 62.0% (recent). As with the Type, the trend of Topic went in the opposite direction to that of ETR&D, which decreased 50.0% (early), 45.2% (middle), and 26.2% (recent). In contrast, the number of Development topic studies of the JET shrank gradually from 58.8% (early), 23.8% (middle), and 10.0% (recent), while that of ETR&D increased from 20.6% (early), 31.0% (middle), and 35.7% (recent). According to Seels & Richey's classification, Design category includes Instructional strategies/methods and learner characteristics. There seem two reasons for this trend. First, the needs of design research grew in Korea and the researchers responded to them promptly. Internet and e-Learning showed phenomenal growth rates and the demands for the introduction of valid and effective design strategies were so strong. Many businesses, government, and K-12 educators wanted to have their own design models for the new learning environment. Another reason could be correlated with the increase of Empirical(experimental) type research. As Driscoll & Dick (1999) and Lee, S (2005) discussed, many researchers from higher education who pursue this for their tenure found it easier to conduct "quick and dirty" empirical studies(See Figure 3).

It can be easily recognized that the portion of "Utilization" , "Management", and "Evaluation" research consistently has been small in JET. A reason of the deficiency of studies on this practical research area may be found from the background of the contributors. As discussed earlier, most of the contributors of both journals are working at academic institutes. In Korea, for professors and professional researchers from research institutes, it is rare to get involved with year-long design-development projects. They do mostly analysis and design, and sometimes evaluation, but not implementation, which is

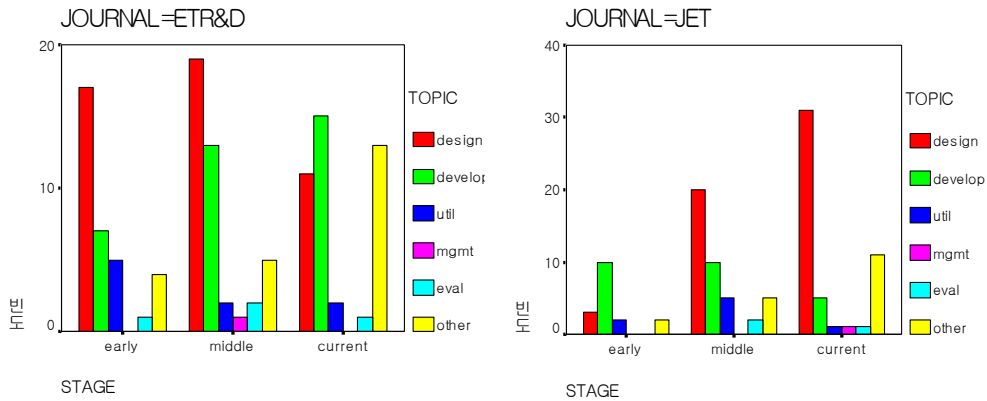


Figure 3. Topic of Research in Both Journals

done by field managers. The field managers usually do not have time to write journal papers that require methodological rigor. While analyzing the content of the articles of the JET, another interesting trend was found in the recent stage. Out of fifty articles in the recent stage, 42 articles (84%) were directly related to the Internet. Words like “Web-Based”, “Internet”, “Cyber”, “ICT” could be found in almost every titles of the recent articles.

Citation Analysis

In total, the articles on the JET cited 32.1 references while those shown on ETR&D had 37.8 citations. The number of cited references increased from 19 to 41.7 during the last twenty years. Out of the 32.1 citations, 1.2 (3.7%) are from the other articles of the JET itself, and 1.0 (3.2%) are from ETR&D. Not a single article from JET was cited by ETR&D in the last 20 years.

In terms of the nationality of the citations, the JET is still highly dependent on foreign references (81%). However, in the current stage, the portion of domestic references increased from 9.3% to 29.3%. One of the reasons of the large portion of foreign references may be the impact of several dissertation-based articles published in the JET. These articles were based on the contributors doctoral dissertations earned from the US institutes. Therefore these articles usually have a long and non-Korean reference list that they used for their dissertations.

As the research and practice of educational technology in Korea got its momentum, the portion of domestic references cited in the JET has increased gradually -- from 16.1%

(middle stage) to 29.5% (recent stage) of total citation (See Table 5). Following the KSET, there are more academic societies where educational technologists join as members nowadays. These younger societies, such as The Korean Association of Educational Information and Media, and The Society of Computer Education, provide publication opportunities to educational technologists through their own academic journals, which are commonly cited to the JET these days

Table 5. Citations in Both Journals

Average # of Citation		Early	middle	current	average
		19	35.6	41.7	32.1
Inter-Journals	JET(self)	0	0.8	2.8	1.2
	%	0.0%	2.2%	6.7%	3.7%
	ETR&D	0.6	1.5	1	1.0
	%	3.2%	4.2%	2.4%	3.2%
Inter-National	Domestic	2.9	3.3	12.2	6.1
	%	15.3%	9.3%	29.3%	19.1%
	Foreign	16.1	32.4	29.5	26.0
	%	84.7%	91.0%	70.7%	81.0%

Summary and Discussion

This study indicates that the Journal of Educational Technology published by the Korea Society of Educational Technology has grown in terms of quantity and quality since its birth 20 years ago. The JET seems to get more independent as it grows. Some issues and concerns also were identified. The articles of the JET are more inclined to Experimental design in terms of research type, and to Design in terms of research topic. Balance across Types and Topics needs be kept for long-term growth. The emergence of e-Learning and the prevalence of high technology in Korea offered opportunities to the field. However, the monopoly of e-Learning that consumes most of the limited space of the JET raised a red flag.

In sum, since its birth 20 years ago, the JET and the community of educational technologists in Korea have grown steadily. Larger bodies of researcher and professionals

and higher education programs that generate future members of the society are only some indicators for the growth. Now, it is time to pursue for maturity as well as physical growth. More balanced and quality-oriented endeavors are expected in the next 20 years.

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