



Identifying the Most Cited Articles and Authors in Educational Psychology Journals from 1988 to 2023

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Abstract

Over the past 30 years, several reviews have examined scholarly contributions of individual researchers and institutions in the field of educational psychology (Fong et al., *Educational Psychology Review* 34:2379–2403, 2022; Greenbaum et al., *Educational Psychology Review* 28:215–223, 2016; Hsieh et al., *Contemporary Educational Psychology* 29:333–343, 2004; Jones et al., *Contemporary Educational Psychology* 35:11–16, 2010; Smith et al., *Contemporary Educational Psychology* 23:173–181, 1998; Smith et al., *Contemporary Educational Psychology* 28:422–430, 2003). However, no reviews have specifically examined scholarly impact as measured by citations since (Walberg, *Current Contents* 22:5–14, 1990) did so over 34 years ago. The present review focused on the period from 1988 to 2023, identifying the most cited articles and authors since Walberg’s study that focused on the period from 1966–1988. Whereas most of the previous reviews have been limited in terms of brief time periods (e.g., six years) and a small set of journals (e.g., five), our scope included 12 educational psychology journals across 36 years. The most cited article (over 9000 times) by (Ryan and Deci, *Contemporary Educational Psychology* 25:54–67, 2000) had more than twice as many citations as the second most cited article by (Pintrich and Groot, *Journal of Educational Psychology* 82:33–40, 1990). Most of the top 30 most cited articles, including four of the top five, addressed the topic of motivation. With regard to highly cited authors, the top five were John Sweller, Richard E. Mayer, Fred Paas, Richard M. Ryan, and Reinhard Pekrun. Several of the 30 most cited authors have never appeared in previous lists of most productive authors. Finally, keyword and cluster analyses revealed most popular topics and collaborative networks among many of the most cited authors that may partly explain their productivity. Examining article and author impact is an important complement to productivity when considering scholarly contributions to the field of educational psychology.

Keywords Educational psychology · Research impact · Citation rate · Publication metrics

Extended author information available on the last page of the article

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Overview

The field of educational psychology owes its origin to Edward Thorndike over 100 years ago but also was influenced by William James, John Dewey, and G. Stanley Hall. The field has retained some of its defining features since its inception (e.g., what researchers study) as well as undergone changes (e.g., growth in discipline-specific terminology; Dumas et al., 2015). Several studies have explored nuances of the field's evolution throughout various time periods over the past 30+ years (e.g., Alexander et al., 2012; Brady et al., 2023; Dumas et al., 2015; Reinhart et al., 2013; Robinson et al., 2007; Hsieh et al., 2005). These studies have highlighted static and/or emerging trends in such areas as the field's scientific rigor, the empirical methods used, and whether recommendations for practice are offered, to name a few. Other studies have examined both individual and scholarly contributions to the field by measuring productivity (Brady et al., 2023; Fong et al., 2022; Greenbaum et al., 2016; Hsieh et al., 2004; Jones et al., 2010; Smith et al., 1998, 2003). Of the productivity studies, none have examined author and article impact as measured by citations since Walberg (1990). By examining impact along with productivity, we may better understand ways in which educational psychology is emerging as a science and those factors that have influenced it. These possible insights provided motivation for the present review.

Prior Measures of Scholarly Contributions to the Field

Productivity has been studied consistently since 1991 to examine individual contributions to the field. Identifying the top-producing scholars and institutions in educational psychology journals allows the field to determine the individuals and places that lead in the production of new knowledge. These studies have consistently focused on a few (5–6) primary educational psychology journals over short (5- to 6-year) periods (i.e., 1991–1996, 1997–2002, 2003–2008, 2009–2014, and 2015–2021).

To calculate research productivity, two primary methods have been used: article counts and points. The article count method simply involves counting the number of articles on which a researcher has been an author or co-author. This method rewards mentors who co-author with junior researchers. The article point method, as defined by Howard et al. (1987), uses a graduated formula that considers both author position and total number of authors for an article. By applying this approach, a more refined understanding of an author's contribution is captured, acknowledging that not all authored publications carry the same weight and that author position signifies varying levels of involvement. However, the point method might punish mentors for publishing with teams of junior researchers. Unfortunately, neither the point nor count methods can prevent groups of authors from gaming the system by simply including each other as co-authors on articles regardless of contribution (Etchells & Chambers, 2015).

Although both the article count and point methods can serve as complementary tools for quantifying the productivity of researchers as one measure of influence to the field, they fall short in evaluating the substantive impact of the research produced. For instance, a researcher functioning as a sole author or occupying a prominent position as the first or second co-author might accumulate higher points or a greater number of publications; however, this numerical representation does not address whether the work influences the field. As such, the purpose of the present review was to examine the impact of both researchers and their articles using different, more nuanced measures that provide further insight into those who have shaped the field.

Alternative Measures of Contributions to the Field

To obtain an alternate view of scholarly contribution, “total citations” serves as a valuable metric that reflects the scholarly influence and significance of one’s work. It offers a quantitative measure of the extent to which a researcher’s work has been referenced by the academic community. This metric transcends the mere count of publications and accounts for the enduring impact of research contributions on subsequent studies, theories, and practices within the field of educational psychology (Agarwal et al., 2016). Walberg (1990) published the first citation analysis of educational psychology journals using 1966 to 1988 data. He reported the most cited articles but not the most cited authors. The most cited article from 1966 to 1988 was Arthur Jensen’s (1969) controversial “How much can we boost IQ and scholastic achievement?” in *Harvard Educational Review* with 1013 citations. We sought to update (1988 to 2023) and also extend (most cited authors) to this research.

It is important to note that although total citations can be a valuable, alternative measure of researchers’ contributions in educational psychology, it may be unduly influenced by a few highly cited articles rather than reflecting a consistent and sustained contribution to the field. Further, using total citations as a measure may favor researchers who have been in the field longer as older articles tend to have more citations than newer articles. For these reasons, it is also important to calculate mean citations per year for articles to provide another measure of impact.

In addition to total citations and mean citations per year, there is yet another measure that combines individual productivity and impact. The *h*-index was proposed by Hirsch (2005) and considers both the number of publications and citations to balance quantity and impact. An *h*-index of 10 simply means that an author has 10 publications that have been cited at least 10 times. A researcher may be very productive but have a low *h*-index if the articles are not often cited by others. Likewise, a researcher may be a one-hit wonder (i.e., have only one very highly cited article) which also results in a low *h*-index. Thus, a high *h*-index indicates both productivity and impact, and identifies authors who are both productive and produce influential work.

The Present Review

The purpose of the present review was to provide an alternative approach to identifying those persons in the field of educational psychology who have made significant contributions during the past 36 years by calculating (a) total citations and mean citations per year for articles and (b) total citations and the *h*-index of highly cited researchers. By exploring the contributions of individuals who have significantly shaped and advanced the discipline during this time frame, our review may serve as a useful resource for those (e.g., administrators, award selection committees) searching for additional ways to measure scholarly contributions in educational psychology. To identify the researchers and articles that have been most influential, we examined 12 educational psychology journals over the recent 36-year period. We also examined collaboration networks to identify the extent to which top authors were directly or indirectly connected in their research endeavors. The primary research questions were the following:

- (1) What are the most cited articles, as defined by total citations and mean citations per year, that have appeared in the 12 educational psychology journals between the years 1988 and 2023?
- (2) Who are the most cited authors as determined by total citations, and what is their *h*-index?
- (3) For those top authors, what is the extent to which they collaborate with each other?
- (4) What are the most popular topics studied according to article keywords?

Method

Journal Selection

Walberg's (1990) review included 16 core educational psychology journals. Some are educational psychology journals simply given the titles, and we chose to include them in our review (e.g., the *Journal of Educational Psychology*, *Educational Psychologist*, *Contemporary Educational Psychology*, *British Journal of Educational Psychology*). However, others are perhaps too general to be considered educational psychology (*Review of Educational Research*, the *American Educational Research Journal*, *Harvard Educational Review*, *Educational Researcher*) or specifically focused on only one area such as reading (e.g., *Reading Research Quarterly*, *Reading Teacher*, the *Journal of Reading Behavior*). Therefore, we used two selection criteria in the present review: (1) journals had to be generally considered "educational psychology" journals by the research team and (2) they had to register an impact factor as determined by the *Web of Science* database.

We decided on a list of 12 top-tier journals; this list was considerably more inclusive than previous lists used in productivity studies but was not too long where journals with questionable relevance to the field or with very low or no impact factors were included. We examined articles published from 1988 to 2023 in the following

journals: the *British Journal of Educational Psychology*, *Cognition and Instruction*, *Contemporary Educational Psychology*, *Educational Psychologist*, *Educational Psychology*, *Educational Psychology Review*, *European Journal of Psychology of Education*, *Instructional Science*, *Journal of Educational Psychology*, *Journal of Experimental Education*, *Journal of the Learning Sciences*, and *Learning and Instruction*. Three of the journals, *Educational Psychology Review*, *Journal of the Learning Sciences*, and *Learning and Instruction*, started after 1988. Whereas Walberg's list of journals were mostly from the USA, over half of the journals in our list were based outside of the USA.

Search Process

Using the database *Scopus*, we retrieved 15,274 articles spanning 1988 to 2023 on April 19, 2024. These articles included empirical studies, reviews, errata, and editorials. Article data included author names and affiliations, title, publication year, and number of citations for each article.

Data Extraction and Analysis

The data were downloaded in CSV and BibTeX format, ensuring compatibility with various analytical tools and facilitating seamless data manipulation. R Studio (Bibliometrix/Biblioshing) and VOSviewer were used to facilitate the exploration of bibliographic data by visualizing patterns, connections, and trends within the large dataset. These analyses are described below.

Most Highly Cited Articles

To determine the 30 most highly cited articles based on total citations, articles were ordered based on citation counts. In addition to extracting the total citations for each article, we calculated mean citations per year, yielding an additional list of top 30 articles. Eighteen articles appeared in both lists; thus, there were 42 unique articles.

Author Contributions

For an examination of author contributions to the field of educational psychology, the total number of authors involved in all publications was extracted using R Studio. To ensure the accuracy and reliability of our analyses, we cross-validated our findings using VOSviewer. Notably, both our R Studio analysis and VOSviewer yielded identical numbers of publications and citations for the 30 authors. The interpretation of author names may vary across analytical tools due to differences in abbreviation conventions, variations in surnames, or other formatting disparities (e.g., "PAAS F" also appeared as "PAAS FGWC"); therefore, we manually checked for any duplicates. For each of top 30 authors, the *h*-index was pulled from Scopus, the Web of Science, and Google Scholar. It has been recommended to use at least

two different databases given that databases can differ in their h -indices listed for authors (Henzinger et al., 2010).

Collaboration Network Among Top Authors

In addition to the comprehensive analysis of individual author contributions, our review delved into the intricate network of collaborations among the top authors in our list. By examining co-authorship patterns, we sought to decode the underlying associations driving collaborative research endeavors within the field of educational psychology. This approach offers several advantages. First, it elucidates the interconnectedness of scholarly communities, highlighting the synergies and shared research interests that facilitate knowledge exchange and innovation. By identifying key hubs of collaboration, we can discern emerging trends and interdisciplinary intersections. Moreover, analyzing collaboration networks provides insight into the nature of researcher contributions—more specifically, the distribution of expertise and resources and the fostering of opportunities for cross-disciplinary work and collective problem-solving.

To analyze the collaborations among the top authors, the data were loaded into VOSviewer and then the top 30 authors (based on total citations) were selected. Clusters were presented in the data output; a cluster reflected at least two authors. Individual authors were not linked with any cluster. The number of authors per cluster was counted as were those who were not linked to anyone.

Most Popular Topics

Finally, to determine the most popular topics, we included a keyword analysis. All keywords listed for the 42 unique articles (those that had the most citations or most mean citations year) were analyzed in a manner similar to the collaboration network analysis.

Results

Research Output of All Twelve Journals

The number of articles, total citations, citations per article, and 2022 Web of Science impact factor for each journal are presented in Table 1. In total, these journals contributed 15,274 articles with 1,037,091 citations. Consistent with what Walberg (1990) reported, the *Journal of Educational Psychology* had the most articles (2605) and citations (309,323).

Most Cited Articles

Lists of the 30 most cited articles based on total citations and mean citations per year are provided in Tables 2 and 3, respectively. The article “Intrinsic and extrinsic

Table 1 Bibliographic information for the twelve selected educational psychology journals from 1988 to 2023

	Journal	Year started	Total citations	Citations per article	2022 impact factor
1	<i>Journal of Educational Psychology</i>	1910	309,323	118.74	4.9
2	<i>Educational Psychologist</i>	1963	115,976	146.43	8.8
3	<i>Learning and Instruction</i>	1991	101,178	65.96	6.2
4	<i>Educational Psychology Review</i>	1989	96,605	85.95	10.1
5	<i>Contemporary Educational Psychology</i>	1976	95,561	66.97	10.3
6	<i>British Journal of Educational Psychology</i>	1931	70,031	45.21	3.7
7	<i>Journal of the Learning Sciences</i>	1991	58,602	107.33	3.8
8	<i>Educational Psychology</i>	1981	45,540	27.43	3.2
9	<i>Cognition and Instruction</i>	1984	44,382	82.96	3.3
10	<i>Instructional Science</i>	1972	41,719	41.31	2.5
11	<i>Journal of Experimental Education</i>	1932	29,220	29.88	2.2
12	<i>European Journal of Psychology of Education</i>	1986	28,954	19.12	3.0

motivations: Classic definitions and new directions” by Ryan and Deci (2000) was the mostly highly cited (9258) based on total citations. This article was also the mostly highly cited based on the mean citations per year (370). The article “Motivational and self-regulated learning components of classroom academic performance” by Pintrich and De Groot (1990) received the second most total citations with 4471, and the article “Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions” by Ryan and Deci (2020) received the second highest mean citations per year with 317. It is noteworthy that these most cited articles all pertained to student motivation.

The 42 most cited articles mostly appeared in four journals: *Educational Psychologist*, 12; *Journal of Educational Psychology*, 9; *Contemporary Educational Psychology*, 7; and *Educational Psychology Review*, 6. The remaining eight most cited articles appeared in the other eight journals. John Sweller co-authored the most “hit” articles with six, followed by Fred Paas with four, and Reinhard Pekrun, Paul Pintrich (deceased), and Barry Zimmerman each with three.

Author Contributions

Across the 15,274 articles, there were more than 20,000 authors who contributed. The top 30 authors based on total citations are presented in Table 4. The top five authors were John Sweller, Richard E. Mayer, Fred Paas, Richard M. Ryan, and Reinhard Pekrun. As is common across the top 30 authors, these five authors have achieved full-faculty status and are affiliated with research-intensive

Table 2 Thirty most cited articles (based on total citations) across the 12 educational psychology journals from 1988 to 2023

Ranking	Title	Authors	Year	Journal	Volume (issue)	Pages	Total citations
1	Intrinsic and extrinsic motivations: Classic definitions and new directions	Ryan R.M.; Deci E.L.	2000	<i>Contemporary Educational Psychology</i>	25(1)	54–67	9258
2	Motivational and self-regulated learning components of classroom academic performance	Pintrich P.R.; De Groot E.V.	1990	<i>Journal of Educational Psychology</i>	82(1)	33–40	4471
3	Expectancy-value theory of achievement motivation	Wigfield A.; Eccles J.S.	2000	<i>Contemporary Educational Psychology</i>	25(1)	68–81	4099
4	Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching	Kirschner P.A.; Sweller J.; Clark R.E.	2006	<i>Educational Psychologist</i>	41(2)	75–86	3987
5	Classrooms: Goals, structures, and student motivation	Ames C	1992	<i>Journal of Educational Psychology</i>	84(3)	261–271	3939
6	Cognitive architecture and instructional design	Sweller J.; Van Merriënboer J.J.G.; Paas F.G.W.C	1998	<i>Educational Psychology Review</i>	10(3)	251–296	3682
7	Perceived self-efficacy in cognitive development and functioning	Bandura A	1993	<i>Educational Psychologist</i>	28(2)	117–148	3441
8	Problem-based learning: What and how do students learn?	Hmelo-Silver C.E	2004	<i>Educational Psychology Review</i>	16(3)	235–266	2609
9	The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice	Pekrun R	2006	<i>Educational Psychology Review</i>	18(4)	315–341	2591
10	The four-phase model of interest development	Hidi S.; Ann Remington K	2006	<i>Educational Psychologist</i>	41(2)	111–127	2473
11	Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings	Brown A.L	1992	<i>Journal of the Learning Sciences</i>	2(2)	141–178	2381

Table 2 (continued)

Ranking	Title	Authors	Year	Journal	Volume (issue)	Pages	Total citations
12	Nine ways to reduce cognitive load in multimedia learning	Mayer R.E.; Moreno R	2003	<i>Educational Psychologist</i>	38(1)	43–52	2381
13	Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research	Pekrun R.; Goetz T.; Titz W.; Perry R.P	2002	<i>Educational Psychologist</i>	37(2)	91–105	2349
14	Formative assessment and the design of instructional systems	Sadler D.R	1989	<i>Instructional Science</i>	18(2)	119–144	2330
15	Achievement goals in the classroom: Students' learning strategies and motivation processes	Ames C.; Archer J	1988	<i>Journal of Educational Psychology</i>	80(3)	260–267	2203
16	Cognitive load theory, learning difficulty, and instructional design	Sweller J	1994	<i>Learning and Instruction</i>	4(4)	295–312	2115
17	Motivating project-based learning: Sustaining the doing, supporting the learning	Blumenfeld P.C.; Soloway E.; Marx R.W.; Krajcik I.S.; Guzdial M.; Palincsar A	1991	<i>Educational Psychologist</i>	26(3–4)	369–398	1988
18	Self-efficacy: An essential motive to learn	Zimmerman B.J	2000	<i>Contemporary Educational Psychology</i>	25(1)	82–91	1986
19	Approach and avoidance motivation and achievement goals	Elliot A.J	1999	<i>Educational Psychologist</i>	34(3)	169–189	1979
20	Interaction analysis: Foundations and practice	Jordan B.; Henderson A	1995	<i>Journal of the Learning Sciences</i>	4(1)	39–103	1977
21	Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year	Skinner E.A.; Belmont M.J	1993	<i>Journal of Educational Psychology</i>	85(4)	571–581	1864
22	Self-regulated learning and academic achievement: An overview	Zimmerman B.J	1990	<i>Educational Psychologist</i>	25(1)	3–17	1862
23	Motivation and education: The self-determination perspective	Deci E.L.; Ryan R.M.; Vallerand R.J.; Pelletier L.G	1991	<i>Educational Psychologist</i>	26(3–4)	325–346	1850

Table 2 (continued)

Ranking	Title	Authors	Year	Journal	Volume (issue)	Pages	Total citations
24	A Social cognitive view of self-regulated academic learning	Zimmerman B.J	1989	<i>Journal of Educational Psychology</i>	81(3)	329–339	1840
25	Cognitive load theory and the format of instruction	Chandler P.; Sweller J	1991	<i>Cognition and Instruction</i>	8(4)	293–332	1699
26	A conceptual framework for assessing motivation and self-regulated learning in college students	Pintrich P.R	2004	<i>Educational Psychology Review</i>	16(4)	385–407	1686
27	Cognitive load measurement as a means to advance cognitive load theory	Paas F.; Tuovinen J.E.; Tabbers H.; Van Gerven P.W.M	2003	<i>Educational Psychologist</i>	38(1)	63–71	1681
28	A motivational science perspective on the role of student motivation in learning and teaching contexts	Pintrich P.R.; De Groot E.V	2003	<i>Journal of Educational Psychology</i>	95(4)	667–686	1625
29	Cognitive load theory and instructional design: Recent developments	Paas F.; Renkl A.; Sweller J	2003	<i>Educational Psychologist</i>	38(1)	1–4	1603
30	Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions	Ryan R.M.; Deci E.L	2020	<i>Contemporary Educational Psychology</i>	61	Article 101,860	1583

universities. Four of the five are affiliated with institutions outside of the USA, with two institutions in Australia (University of New South Wales and Australian Catholic University), one in the UK (University of Essex), one in the Netherlands (Erasmus University Rotterdam), and one in the USA (University of California, Santa Barbara).

The majority of the top 30 authors have had a significant scholarly impact as evidenced by their high *h*-index (the average *h*-index from Scopus was 65, from Web of Science it was 61.66, and from Google Scholar it was 121.55). Richard M. Ryan had the highest *h*-index of these 30 authors across Scopus and Google Scholar, whereas Herbert W. Marsh had the highest *h*-index in Web of Science. Marsh published the most (137) articles in the 12 journals over the 36-year period and yet did not have one of the most cited articles.

Collaboration Network Among Top Authors

We found that 24 of the top 30 authors are linked, either directly or indirectly, through their co-authorship relationships. This interconnectedness highlights the nature of academic collaboration within the field of educational psychology. The collaboration network for the 30 authors is presented in Fig. 1. Once again, Marsh is noteworthy as being the most connected to other authors. The colored clusters represent groups of researchers who have collaborated. In the green cluster, for example, seven researchers are interconnected, collectively representing a wealth of expertise in cognitive load theory. The blue cluster represents a network of researchers who have collaborated on motivation research.

Keyword Analysis

The results of the keyword cluster analysis are presented in Fig. 2. Consistent with this analysis, just over half (23) of the 42 unique articles examined the role of motivation, self-efficacy, self-regulation, or achievement goals in shaping students' learning experiences and academic performance. These articles offer insights into how educators can cultivate a motivational climate that fosters engagement, persistence, and deep learning among students. Also noteworthy, seven of the top articles examined cognitive load theory.

Discussion

Articles published in educational psychology have often garnered an impressive number of citations, both per year and since their publication date. We found that the top 30 most cited articles based on total citations each had over 1500 citations, with the most cited article, "Intrinsic and extrinsic motivations: Classic definitions and new directions," (Ryan & Deci, 2000) having over 9000. We also found that

Table 3 Thirty most cited articles (based on mean citations per year) across the 12 educational psychology journals from 1988 to 2023

Ranking	Title	Authors	Year	Journal	Volume (issue)	Pages	Citations per year	Total citations
1	Intrinsic and extrinsic motivations: Classic definitions and new directions	Ryan R.M.; Deci E.L	2000	<i>Contemporary Educational Psychology</i>	25(1)	54–67	370.32	9258
2	Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions	Ryan R.M.; Deci E.L	2020	<i>Contemporary Educational Psychology</i>	61	Article 101,860	316.60	1583
3	Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching	Kirschner P.A.; Sweller J.; Clark R.E	2006	<i>Educational Psychologist</i>	41(2)	75–86	209.84	3987
4	Expectancy-value theory of achievement motivation	Wigfield A.; Eccles J.S	2000	<i>Contemporary Educational Psychology</i>	25(1)	68–81	163.96	4099
5	From expectancy-value theory to situated expectancy-value theory: A developmental, social cognitive, and socio-cultural perspective on motivation	Eccles J.S.; Wigfield A	2020	<i>Contemporary Educational Psychology</i>	61(4)	Article 101,859	153.60	768
6	Cognitive architecture and instructional design	Sweller J.; Van Merriënboer J.J.G.; Paas F.G.W.C	1998	<i>Educational Psychology Review</i>	10(3)	251–296	136.37	3682

Table 3 (continued)

Ranking	Title	Authors	Year	Journal	Volume (issue)	Pages	Citations per year	Total citations
7	The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice	Pekrun R	2006	<i>Educational Psychology Review</i>	18(4)	315–341	136.37	2591
8	The four-phase model of interest development	Hidi S.; Ann Renninger K	2006	<i>Educational Psychologist</i>	41(2)	111–127	130.16	2473
9	Motivational and self-regulated learning components of classroom academic performance	Pintrich P.R.; De Groot E.V	1990	<i>Journal of Educational Psychology</i>	82(1)	33–40	127.74	4471
10	The ICAP framework: Linking cognitive engagement to active learning outcomes	Chi M.T.H.; Wylie R	2014	<i>Educational Psychologist</i>	49(4)	219–243	124.27	1367
11	Problem-based learning: What and how do students learn?	Hmelo-Silver C.E	2004	<i>Educational Psychology Review</i>	16(3)	235–266	124.24	2609
12	Cognitive architecture and instructional design: 20 years later	Sweller J.; van Merriënboer J.J.G.; Paas F	2019	<i>Educational Psychology Review</i>	31(2)	261–292	119.5	717
13	Classrooms: Goals, structures, and student motivation	Ames C	1992	<i>Journal of Educational Psychology</i>	84(3)	261–271	119.36	3939

Table 3 (continued)

Ranking	Title	Authors	Year	Journal	Volume (issue)	Pages	Citations per year	Total citations
14	Adding immersive virtual reality to a science lab simulation causes more presence but less learning	Makransky G.; Terkildsen T.S.; Mayer R.E	2019	<i>Learning and Instruction</i>	60	225–236	109.00	654
15	Nine ways to reduce cognitive load in multimedia learning	Mayer R.E.; Moreno R	2003	<i>Educational Psychologist</i>	38(1)	43–52	108.23	2381
16	Perceived self-efficacy in cognitive development and functioning	Bandura A	1993	<i>Educational Psychologist</i>	28(2)	117–148	107.53	3441
17	Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research	Pekrun R.; Goetz T.; Titz W.; Perry R.P	2002	<i>Educational Psychologist</i>	37(2)	91–105	102.13	2349
18	Measuring emotions in students' learning and performance: The Achievement Emotions Questionnaire (AEQ)	Pekrun R.; Goetz T.; Frenzel A.C.; Barchfeld P.; Perry R.P	2011	<i>Contemporary Educational Psychology</i>	36(1)	36–48	91.57	1282
19	Mindsets that promote resilience: When students believe that personal characteristics can be developed	Yeager D.S.; Dweck C.S	2012	<i>Educational Psychologist</i>	47(4)	302–314	88.31	1148

Table 3 (continued)

Ranking	Title	Authors	Year	Journal	Volume (issue)	Pages	Citations per year	Total citations
20	A meta-analysis of the cognitive and motivational effects of serious games	Wouters P.; van Nimwegen C.; van Oostendorp H.; van Der Spek E.D	2013	<i>Journal of Educational Psychology</i>	105(2)	249–265	87.58	1051
21	The gamification of learning: A meta-analysis	Sailer M.; Homner L	2020	<i>Educational Psychology Review</i>	32(1)	77–112	85.20	426
22	Motivation and social cognitive theory	Schunk D.H.; DiBenedetto M.K	2020	<i>Contemporary Educational Psychology</i>	60	Article 101,832	84.00	420
23	A conceptual framework for assessing motivation and self-regulated learning in college students	Pintrich P.R	2004	<i>Educational Psychology Review</i>	16(4)	385–407	80.29	1686
24	Self-efficacy: An essential motive to learn	Zimmerman B.J	2000	<i>Contemporary Educational Psychology</i>	25(1)	82–91	79.44	1986
25	Spatial ability for STEM domains: Aligning over 50 years of cumulative psychological knowledge solidifies its importance	Wai J.; Lubinski D.; Benbow C.P	2009	<i>Journal of Educational Psychology</i>	101(4)	817–835	77.63	1242
26	Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark (2006)	Hmelo-Silver C.E.; Duncan R.G.; Chinn C.A	2007	<i>Educational Psychologist</i>	42(2)	99–107	77.44	1394

Table 3 (continued)

Ranking	Title	Authors	Year	Journal	Volume (issue)	Pages	Citations per year	Total citations
27	Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress	Klassen R.M.; Chiu M.M	2010	<i>Journal of Educational Psychology</i>	102(3)	741–756	77.13	1157
28	Cognitive load measurement as a means to advance cognitive load theory	Paas F.; Tuovinen J.E.; Tabbers H.; Van Gerven P.W.M	2003	<i>Educational Psychologist</i>	38(1)	63–71	76.41	1681
29	Approach and avoidance motivation and achievement goals	Elliot A.J	1999	<i>Educational Psychologist</i>	34(3)	169–189	76.12	1979
30	A motivational science perspective on the role of student motivation in learning and teaching contexts	Pintrich P.R.; De Groot E.V	2003	<i>Journal of Educational Psychology</i>	95(4)	667–686	73.86	1625

Table 4 Thirty most cited researchers (based on total citations) across the 12 educational psychology journals from 1988 to 2023

Ranking	Author	Affiliation	Citations	Articles	Citations per article	Scopus <i>h</i> -index	Google Scholar <i>h</i> -index	Web of Science <i>h</i> -index
1	John Sweller	University of New South Wales	27,087	83	326	76	N.S	65
2	Richard E. Mayer	University of California, Santa Barbara	24,455	128	191	114	182	103
3	Fred Paas	Erasmus University Rotterdam	18,827	91	207	76	105	70
4	Richard M. Ryan	Australian Catholic University	17,255	19	908	143	227	132
5	Reinhard Pekrun	University of Essex	16,109	70	230	79	125	73
6	Edward L. Deci	University of Rochester	15,542	8	1943	99	179	94
7	Herbert W. Marsh	Australian Catholic University	14,970	137	109	128	210	136
8	Paul Pintrich	University of Michigan (deceased)	12,843	20	642	40	N.S	33
9	Andrew J. Elliot	University of Rochester	11,636	34	342	89	123	85
10	Barry J. Zimmerman	City University of New York	11,351	21	541	58	122	44

Table 4 (continued)

Ranking	Author	Affiliation	Citations	Articles	Citations per article	Scopus <i>h</i> -index	Google Scholar <i>h</i> -index	Web of Science <i>h</i> -index
11	Allan Wigfield	University of Maryland, College Park	11,257	42	268	57	100	55
12	Steve Graham	Arizona State University	9886	73	135	76	153	51
13	Jacquelynn Eccles	University of California, Irvine	9816	32	307	113	181	99
14	Roxana Moreno	The University of New Mexico (deceased)	9260	22	421	38	N.S	23
15	Thomas Goetz	University of Vienna	9230	44	210	56	86	77
16	Jeroen J.G. van Merriënboer	Maastricht University (deceased)	8558	59	145	65	102	60
17	Johnmarshall Reeve	Australian Catholic University	8283	32	259	55	81	52
18	Alexander Renkl	University of Freiburg	8107	76	107	54	87	49
19	Paul A. Kirschner	Open University of the Netherlands	8040	36	223	68	108	61

Table 4 (continued)

Ranking	Author	Affiliation	Citations	Articles	Citations per article	Scopus <i>h</i> -index	Google Scholar <i>h</i> -index	Web of Science <i>h</i> -index
20	Carol Midgley	University of Michigan, Ann Arbor (deceased)	7167	21	341	42	N.S	38
21	Gregory Schraw	University of Nevada, Las Vegas (deceased)	6974	49	142	51	N.S	47
22	Paul Chandler	University of New South Wales	6818	18	379	33	N.S	31
23	Oliver Lüdtke	Kiel University	6765	69	98	67	100	65
24	Ulrich Trautwein	University of Tübingen	6666	73	91	70	104	68
25	Elisabeth V. De Groot	Radboud University Nijmegen	6389	5	1278	5	N.S	N.S
26	Tamara van Gog	Utrecht University	6211	75	83	57	80	54
27	Carole Ames	Michigan State University	6142	2	3071	11	N.S	16
28	Michelene T.H. Chi	Arizona State University	6004	19	316	45	76	32
29	Raymond P. Perry	University of Manitoba	5666	21	270	43	77	40
30	Cindy Hmelo-Silver	Indiana University, Bloomington	5618	21	268	42	66	35

*Scopus was searched on May 11, 2024, Google Scholar was searched on May 12, 2024, and Web of Science was searched on May 13, 2024 for *h*-indices

the top 30 most cited articles based on mean citations per year each had an average of over 70 citations per year on average, with the most cited article (also Ryan and Deci) having 370 per year.

The list of the 30 most cited authors across the 12 educational psychology journals from 1988 to 2023 includes some of the most prominent educational psychologists in the field. Several of the most cited authors have not appeared in previous lists of most productive authors, providing a different view of those researchers who have significantly contributed to the field. Several authors also had a high h -index, indicating their productivity and ability to produce influential work. The h -indices were generally high across all three databases, with the mean being above 60. This is no small feat and reflects a highly productive research career with impactful articles that have contributed to the advancement of the field in multiple research areas. Finally, the most cited authors tended to be collaborative, with 24 of the top 30 authors being linked, either directly or indirectly, with each other through their co-authorship relationships.

The combined set of 42 unique most-cited articles in educational psychology journals showcases the most impactful topics in the field that is consistent with the keyword analysis: motivation, cognitive load theory, and learning were the most popular topics. In Walberg's (1990) list of the 15 most cited articles, only one (Weiner, 1979) covered motivation. Of course, as mentioned previously, Walberg's list of journals included several that would be considered outside educational psychology. When considering these topics, it is important to note that simply choosing a topic that has potential for impact is not sufficient for garnering an impressive number of citations. Rather, the article has to offer something new to the field that drives future research and is considered a seminal study or review. Tips on how to write such "hit" articles, like writing a hit song or a New York Times best-selling book, will not be revealed here. However, it may be worthwhile to examine the authors to find commonalities.

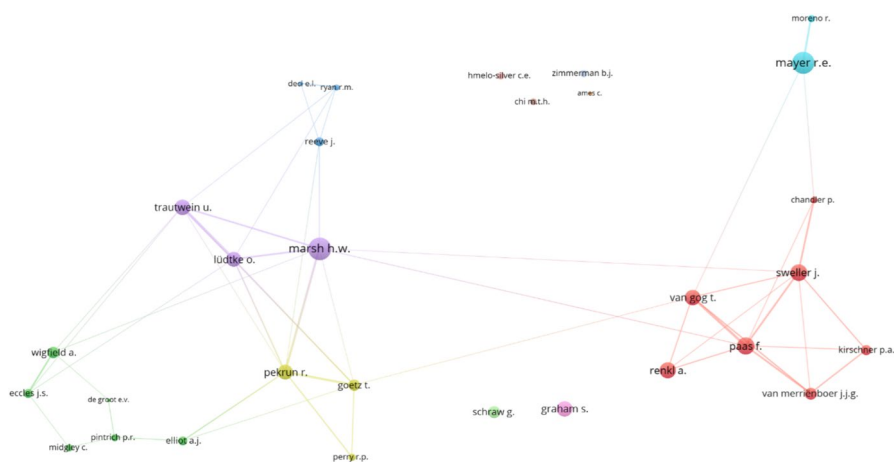


Fig. 1 Collaboration network for the top 30 authors (as determined by total citations). Twenty-four authors are linked and six are independent

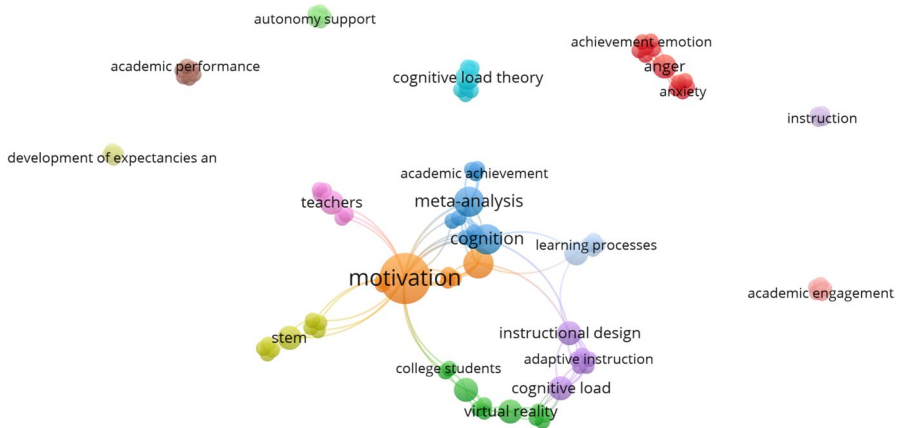


Fig. 2 Keyword cluster analysis for the 42 unique, top articles (as determined by total citations and mean citations per year)

The research areas reflected across the top authors are also consistent with those identified in the list of 42 articles and keyword analysis, including such topics as cognitive load theory, effective instructional methods, multimedia learning, motivation, and self-efficacy, to name a few. However, authoring a “hit” article and being a most cited author do not necessarily go hand in hand. Although each of the top 10 authors, except Marsh, authored at least one hit article, others (e.g., Graham, Schraw, Reeve) who were also highly cited had no “hits.”

Significance

Scholarly productivity in educational psychology has previously been measured mainly by the numbers of articles authored or the relative contribution of those authorships. Being internationally recognized by appearing in such lists published every six years is a source of pride for many in our field. Further, such inclusion is often mentioned in researchers' vitae and websites. Finally, administrators may refer to such lists when considering annual evaluations and promotion and tenure decisions of researchers, in addition to prestigious awards.

The present study provides an additional approach to assessing the scholarly productivity of researchers by examining impact on the field. Just like an *h*-index combines both quantity and quality of scholarly contributions, those who evaluate researchers based on their contributions may wish to consider citations in addition to numbers of articles authored. Further, just as journals can claim to be high quality but fail to register an impact factor, so too can researchers claim to publish a great deal but fail to impact the rest of the field by not being cited by their peers. It is much easier to publish in predatory, open-access journals that charge money to publish than those in our list of 12 reported here. Quality in terms of outlets and impact should be included in evaluations of researchers.

Finally, by highlighting seminal articles in the field as determined by total and mean citations per year, the present study may contribute to a better understanding of from where we have come and to where we are going as an educational psychology research community. For example, most of the highly cited articles featured motivation and goals. These areas have remained consistently popular over the past 36 years. More recent topics, such as cognitive load theory, have become increasingly popular, and are generally experimental in nature (Martella et al., under review). How will these popular topics and the methods employed shift (or not shift) the field? The most recent evidence (Brady et al., 2023) suggests there will be a continued rise in observational research as compared to experimental research.

Limitations and Future Directions

There are five primary limitations to the present review. The first limitation is that though Scopus is a comprehensive bibliographic database, its coverage may not be exhaustive. As such, there could be an omission of relevant publications from other databases. Different databases (e.g., Web of Science) may yield slightly different results due to variations in indexing and inclusion criteria. Therefore, researchers may wish to conduct similar analyses using other databases. The second limitation is that our analysis focused on 12 prominent journals (as mentioned in the “[Method](#)” section); this selection may not represent the entirety of influential publications in educational psychology. Future reviews may consider using different journals using their own criteria to examine top articles and authors.

A third limitation relates the exclusion of highly cited articles and/or influential authors from before 1988. For example, B. F. Skinner had a top-cited article but was not a top cited author during this time frame (he died in 1990). We focused on the period following Walberg’s (1990) review to ensure that the analysis was relevant to contemporary research trends, methodologies, and technological advancements that are critical to current scientific inquiry. The proliferation of digital databases during this period means that citation data is more accurate and accessible, improving the reliability of the analysis.

For a fourth limitation, although the *h*-index serves as a valuable metric for assessing an author’s overall scholarly impact, it also has limitations. One of its drawbacks is that it tends to favor prolific authors with a high number of publications, potentially overlooking the impact of a few highly cited works. Additionally, the *h*-index may not differentiate between recent and older publications, potentially skewing the representation of an author’s current influence. Therefore, those who conduct future reviews may wish to adopt other indices such as the *g*-index or *m*-index.

Finally, the fifth limitation concerns the collaboration network. More specifically, we did not conduct an exhaustive analysis of the specific articles where the top researchers have collaborated. We also only examined the 42 most cited articles. These limitations underscore the need for further investigation into the precise nature and extent of collaborations among top researchers. Further examination of joint publications and research endeavors may help us to understand how

collaborations are related to both productivity and impact. For example, do most highly cited authors collaborate with other highly cited authors or do they usually collaborate with junior authors?

Conclusion

The present review extends prior productivity research by using different metrics to examine those researchers who have significantly contributed to the field of educational psychology. As such, our review can serve as a resource for identifying ways to measure scholarly contributions in educational psychology. Further, by highlighting seminal articles in the field as determined based on total and mean citations per year, this work may contribute to a better understanding of from where we have come and to where we are going as an educational psychology research community.

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Data Availability Data are available upon request.

Declarations

Conflict of Interest The authors declare no competing interests.

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