

Methodological Flaws: A Review of Sample Master Theses

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

Abstract

This paper reports results of a review of Master theses from four academic units at the College of Education and Behavioral Studies, Addis Ababa University, Ethiopia. The purpose of this review was to explore and reflect on the appropriateness of research designs of Masters theses across four academic units. The review focused on the research designs, tools, methods of data analyses, and sampling used in the theses. A total of 121 Master theses were randomly selected. Thematic analysis and descriptive statistics were used to analyse the data. The review found similar research designs adopted by theses across each academic unit. Findings common to the theses under review include: qualitative data analysis was hardly explained using appropriate methods of qualitative data analysis. In addition, in most of the theses, the sample size was not determined and justified using the proper sample size calculation formula or justification. Therefore, there is a need for the college and academic units on how the research course instructors and supervisors support students to craft their research designs properly. Finally, the researchers suggest that more studies of this kind need to be conducted in the broader context in other higher education institutions in order to build up a more coherent picture of the area.

Keywords: methodological flaw, MA thesis, appropriateness, research design, and academic units

22 BACKGROUND OF THE STUDY

23 The role of higher education institutions in knowledge and skills creation and dissemination
24 is paramount [1]. Abbott and Doucouliagos [2] argue that higher education institutions are
25 the foundation for the research and human capital generating process. These days, the
26 quality and quantity of scholarly research outputs produced by academics and their students
27 are one of the principles set to evaluate the research output of higher education institutions
28 [3, 4]. Similarly, the issue of quality research output is an area of concern in the Ethiopian
29 higher education institutions [5, 6]. The Ethiopian Higher Education Proclamation specifies
30 that teaching, conducting research and rendering community services are central to the
31 mission of higher education institutions [7]. According to Kahsay [8], quality research
32 outputs in higher education are vital for a country's economic, social, and political
33 development. In view of this, higher education institutions are expected to carry out scientific
34 research using a sound research methodology, which is the focus of this review.

35 The Ethiopian government has emphasized the role research in higher education plays in
36 the economic growth and development of the country in the Growth and Transformational
37 Plan II (GTP) [9]. As specified in the GTP-II, "The direction of the next five years plan is to
38 ensure quality and relevance in the public and private higher education institutions" [9]. The
39 GTP-II further stipulated that universities need to plan "to improve the quality of education
40 and research activities in order to supply competent human power for the industrial sector in
41 leadership, engineering and science fields" [9]. In this context, Addis Ababa University (AAU),
42 which is the oldest and the biggest public university of the country and has been engaged in
43 teaching, research and community service activities since its establishment in 1950. The
44 AAU strategic plan is underpinned by its mission to become a premier research university in
45 Africa [10-13]. The quality of research outputs apparently helps the university to achieve its
46 mission, aspiration to become well known higher education research institution of the
47 country.

48 As part of tackling both local and global pressures, Ethiopia has increased the number of its
49 higher education institutions from two to eight in 1999 and currently there are to more than
50 forty public universities [14, 15]. Despite the tremendous expansion, there is a prevailing
51 chorus of complaint among stakeholders about the quality of postgraduate research outputs
52 [5, 13, 16]. To approach the problem, Addis Ababa University, was one of the public
53 universities that engaged to take the leading role in research activities [9, 10]. AAU is
54 witnessing a significant increase in the number of postgraduate students and research [10,
55 12]. The increase in the number of postgraduate students was from 211 in 2000 [17] to
56 17,738 in 2019 [18] at AAU requires attention to be placed on the research training and
57 quality of output for the institution. In Ethiopian public universities and AAU as well,
58 postgraduate research output is considered as the final thesis report of a student when it
59 meets university requirements and is approved by the thesis examining board. Approved
60 theses are publicly available [19]. However, achieving quality research outputs is a complex
61 task, and little is known about the AAU learning and teaching of research study design as
62 one component that may contribute to this end. Therefore, this review explores and reflects
63 upon the appropriateness of research designs of Masters theses as academics are
64 complaining about the quality of masters papers compared to doctoral theses at AAU [20,
65 21]. The review was carried out across four academic units: Department of Curriculum and
66 Instruction, Department of Educational Planning and Management, Department of Special
67 Needs, and School of Psychology.

68 Review of literature

69 In the journey of research, crafting an appropriate study design and addressing the proposed
70 research question is not an easy task for postgraduate students and beginner researchers
71 [22, 23]. This entails, the selection of research design is essential to taking up a research

72 project so that the conclusion serves the purpose for which the project is undertaken. In line
73 with this, Jonker and Pennink [22] argue that “it is not surprising that in many studies –
74 directed either at regular students, teachers or doctoral students – methodology forms a
75 difficult, and preferably avoided, a subject of conversation [22]. In any academic journey, in
76 order to carry out a quality piece of research, careful choices of methodology and methods
77 are the key to success. However, most of the time the term ‘methodology’ and ‘method’ and
78 ‘design’ are often used erratically and inconsistently among the graduate students [22-24].

79 A methodology is a justification for the research approach and the lens through which the
80 analysis occurs [25]. Said another way, a methodology describes the general research
81 strategy that outlines how research is to be undertaken, whereas methods identify means or
82 modes of data collection [25]. Similarly, Cohen, Manion [24] pointed out that “Research
83 methodology (approaches and research styles, e.g. survey; experimental;
84 ethnographic/naturalistic; longitudinal; cross-sectional; historical; correlational; ex post facto)
85 [24] whereas “methods, we mean that range of approaches used in educational research to
86 gather data which are to be used as a basis for inference and interpretation, for explanation
87 and prediction” [24]. Kothari [26] further added research methods refer to the techniques
88 that are used to carry out research. On the other hand, the same author explained research
89 methodology as a means to systematically solve the research problem, and it is a science of
90 studying how research is done scientifically [26]. According to Kothari [26], a methodology is
91 broader than research methods.

92 Thus, when we talk of research methodology we not only talk of the research
93 methods but also consider the logic behind the methods we use in the context of
94 our research study and explain why we are using a particular method or technique
95 and why we are not using others so that research results are capable of being
96 evaluated either by the researcher himself or by others[26].

97 Drawing on Kothari [26]’s thinking, a methodology is broader than methods because
98 methodology covers the theoretical and philosophical assumptions of particular interest of
99 research while methods are not. Saunders [27] pointed out the distinction between the two
100 terms, where methodology refers to the theory of how research should be undertaken,
101 including the theoretical and philosophical assumptions upon which research is based, [27].
102 On the other hand, methods refer to techniques and procedures used to obtain and analyse
103 data, including for example questionnaires, observation, interviews, and document analysis
104 as well as both quantitative (statistical) and qualitative (non-statistical) analysis techniques
105 Saunders [27]. In the academic context, the methodology is often said to be the most
106 relevant section of the project [28], yet in everyday research practice, it is not always treated
107 accordingly.

108 A significant number of research outputs confuse *research design* with *methods* and
109 *methodology*. It is common to see research design treated as a means of data collection
110 rather than the guiding principle of the inquiry. Most of the time “research design” and
111 “methodology” are incorrectly used interchangeably even though they are distinct concepts
112 [29]. Marczak, DeMatteo, and Festinger [29] further explain that “methodology refers to the
113 principles, procedures, and practices that govern research, whereas research design refers
114 to the plan used to examine the question of interest” [29]. Leedy and Ormrod [30] concur
115 further strengthening the distinction between the two terms as, “the research design provides
116 the overall structure for the procedures the researcher follows, the data the researcher
117 collects, and the data analyses the researcher conducts. Simply put, research design is
118 planning” [30]. A research design is a conceptual structure and blueprint for data collection,
119 measurement, and analysis of the data [26]. It is guided by the idea of ‘fitness for purpose’
120 [24]. In general, the research design explains what kind of data is required, what kind of
121 methods are going to be employed for collection and analysis and overall, it tells how all of
122 this is going to answer the proposed research questions.

123 **The context of the study**

124 Nowadays, there is a prevailing complaint among university academics and leaders about
125 the quality of MA research papers of graduate students **compared to doctoral research**
126 **works** at AAU [6, 10, 20, 21]. For instance, Woldegiyorgis [5] argued that “Given the quality
127 of graduates, and of those admitted into graduate programs, the research capacity of
128 Ethiopian universities is in serious jeopardy” [5]. The researchers teaching experience and
129 examining several MA theses examiners at different departments of the College of
130 Education and Behavioural Studies of Addis Ababa University also confirms Woldegiyorgis’s
131 argument. This situation inspired the team to explore and reflect on the postgraduate
132 students’ MA theses at AAU. In addition to this, the University Senate legislation in article 95
133 (1) stipulated that “A thesis/dissertation shall constitute an individual's effort in academic
134 pursuits to identify and analyse problems by applying sound methodology”[31]. Hence, the
135 researchers believed that a critical review of AAU students MA theses’ research design and
136 methods section would help both the institution and the university system participants such
137 as, students, academics, and institutional leaders to see and feel the gaps to improve the
138 quality of postgraduate research outputs in the future. With this in mind, the study is deemed
139 to answer the following research questions.

140 **Research questions**

- 141 1. What research designs and methods are being employed in AAU MA theses?
- 142 2. How appropriate were research designs and methods applied in AAU MA theses?
- 143 3. What are the implications of this review for quality postgraduate research?

144 **METHODS AND MATERIALS**

145 **Study design and setting**

146 This study used document analysis as a research method. **According to Bowen [32] and**
147 **[33], document analysis is a form of qualitative research in which documents are interpreted**
148 **by the researcher to give voice and meaning on topics under investigation.** Bowen [32]
149 further argued that “Document analysis is a systematic procedure for reviewing or evaluating
150 documents both printed and electronic (computer-based and Internet-transmitted)
151 material”[32]. In qualitative research, like other analytical methods, document analysis needs
152 data to be studied and interpreted in order to elicit meaning, gain understanding, and
153 develop empirical knowledge [34]. Martin and Stella [35] note that the policy document,
154 research papers, and records give the researchers access to the necessary information and
155 insights into the issue under investigation. In line with this idea, a thorough review of MA
156 theses of four academic units at Addis Ababa University was made. The methodology
157 section of the theses was analysed thematically, with themes drawn from literature on the
158 use of appropriate methodology in a research project. Finally, the findings of the review of
159 the theses from each sample academic unit was presented and its implication was also
160 forwarded.

161 This study was conducted at one of the higher learning institutions, Addis Ababa University
162 (AAU), Ethiopia. Founded in 1950 as University College of Addis Ababa, AAU is the biggest
163 and oldest public university of the country, with a student population of 51,500 [36]. AAU has
164 10 colleges and approximately 70 departments delivering undergraduate and graduate
165 programs. Among the ten colleges, the College of Education and Behavioural Studies was
166 selected as the study area because it is the oldest college of AAU [31, 36]. The has also
167 experienced, and senior faculties are engaged in research and teaching activities. In
168 addition, the College has committed itself in preparing teachers, educational policy analysts,
169 educational planners, educational managers/leaders, human resource developers, and

170 trainers [37]. Therefore, much is expected from the college in terms of maintaining quality
 171 education, which comprises quality research outputs as well. The population of the study
 172 was all the academic units delivering post-graduate education programs in the college.

173 **Sampling**

174 Determining appropriate sample size depends upon the nature of the population of interest
 175 or the data to be gathered and analysed, and subject availability [30, 38]. Accordingly, the
 176 sample size for the review was determined based on the recommendation by [26, 39, 40].
 177 The review considered MA theses in the College from 2014-2018 as represented in Table 1
 178 below.

179 **Table 1: Total MA papers from 2014-2018 across the academic units**

Academic units	2014	2015	2016	2017	2018	Total
Educational management and planning (EDPM)	65	20	29	23	5	142
Curriculum & instruction (CI)	34	12	12	4	0	62
Psychology	77	36	8	11	3	135
Special needs education (SNE)	32	12	12	8	0	64
Total	208	80	61	46	8	403

180 As indicated in Table 1, from 2014 to 2018, a total of 403 MA theses were found in the
 181 database of the university.

182 As specified in the Addis Ababa University School of Graduate Studies [19] thesis writing
 183 and grading grades guideline and the University Senate legislation, MA theses are rated as
 184 Excellent ≥ 85 A; Very Good $75 \leq X < 85$ B+ ; Good $60 \leq X < 75$ B; Satisfactory $50 \leq X < 60$
 185 C+ ;Fail < 50 F. From the researchers' personal experience, it is only the thesis which is
 186 rated as 'excellent' or 'very good' that is available in the university database for public
 187 access. As recommended by Mills and Gay [39], for a descriptive study, "it is not uncommon
 188 to sample 10% to 20% of the population" [39]. However, the researchers sampled 30% of
 189 the total MA papers that are found in the database of the university to get a wider picture of
 190 the issues of the review. This idea is also supported by Leedy and Ormrod [30], and Best
 191 and Kahn [38] who argued having a large sample size is yet essential. Therefore, of 403 MA
 192 theses, 30% of the theses was sampled, and finally, 121 MA theses were selected for the
 193 review (see Table 2).

194 **Table 2: Sampled papers**

Academic units	2014	2015	2016	2017	2018	Total
Educational management and planning (EDPM)	20	6	9	7	2	43
Curriculum & instruction (CI)	10	4	4	1	0	19
Psychology	23	11	2	3	1	41
Special needs education (SNE)	10	4	4	2	0	19
Total	62	24	18	14	2	121

195 As can be seen from Table 2, after determining the sample size, the required total number of
196 MA thesis (n=121) were proportionally drawn from each academic unit using Pandey, Ashraf

197 [41]'s formula: $n_i = \frac{N_i}{N} n$

198 Where, n_i = the number of MA theses required to be selected from a given academic unit
199 with a total number of N_i MA theses, and the n =the total number of MA theses sampled from
200 the four academic units with a total of MA theses= N . Finally, the required MA theses were
201 selected using the simple random technique from each academic unit.

202 **Data gathering instrument**

203 Document analysis was employed as a tool for data collection. As Bowen [32] argued,
204 document analysis is a systematic procedure for reviewing both printed and electronic
205 materials. The documents which might be used for reviewing study have a variety of forms
206 such as "...manuals; background papers; books and brochures; diaries and journals; event
207 programs (i.e., printed outlines); letters and memoranda; maps and charts; newspapers...
208 [32]. This review utilised Addis Ababa University graduate students' MA theses, and
209 considered associated legal documents, for instance, thesis assessment and grading
210 guidelines, the University's Senate legislation, Ethiopian Higher Education Proclamation, and
211 the Ethiopian Growth and Transformational Plan-II.

212 **Ethical consideration**

213 As specified in the thesis writing guideline and Senate legislation of Addis Ababa University
214 (Addis Ababa University, 2013; Addis Ababa University School of Graduate Studies, 2012),
215 copies of the theses made publicly available on online database, and as widely as possible,
216 in keeping with one of AAU's primary goal of disseminating knowledge. The University's
217 Senate legislation further stipulated that all the copies of the theses from the academic units
218 shall remain property of the University and as such the University may utilize the same by
219 making, such copies, among others, part of its online database. Accordingly, contact was
220 made with the university for the permission to use the theses for this study from the online
221 database, and permission was granted.

222

223

224

225

226

227

228

229

230

231

232

233

234

235

236 **RESULTS AND DISCUSSION**

237 This section presents the results and discussion pertaining to the data that emerged from the
 238 review of the MA theses. The section outlines the findings of each of the four Academic
 239 Units. The first academic unit is the School of Psychology. The findings of the review
 240 encompassed the research design used, tools employed, data analysis used, and the
 241 sampling process of the theses as indicated in Table 3.

242 **Table 3: Reviewed MA theses in the School of Psychology**

Research designs used (n=41)	Tools employed						Data analysis used				Sampling		
	Questionnaire	Test	Interview	Focus group discussion	Document analysis	Observation	Descriptive statistics	Inferential analysis	Both	Thematic	determined with reasonable	determined without reasonable iustification	not justified
Cross-sectional design (n=9)	9	1	2	-	-	-	1	7	1	-	3	-	6
Descriptive (n=8)	8	-	3	2	-	2	2	2	4	1	5	-	3
Qualitative (n=6)	1	-	6	1	1	2	-	-	1	5	4	-	2
Merged/Fused (n=5)	4	1	2	2	2	1	-	1	2	2	2	1	2
Correlational design (n=4)	4	-	1	-	-	-	-	-	4	-	2	-	2
Mixed (n=3)	3	1	2	-	-	1	1	1	1	1	1	1	1
Quantitative (n=3)	3	-	1	-	-	-	-	1	2	-	1	-	2
Unstated (n=3)	3	-	-	-	-	-	-	2	1	-	3	-	-
Total	35	3	17	5	3	6	4	14	15	9	21	3	18

243

244 As indicated in Table 3, the MA theses in the School of Psychology predominately used
 245 cross-sectional, descriptive, and qualitative research designs. Other designs such as
 246 correlational design, mixed methods, and quantitative research designs were also used in
 247 the methods section of the theses. From the review, it has also been learned that students
 248 used two different research designs, that is fused or merged different research designs in a
 249 study. In some theses, the research designs and procedures were clearly explained, but
 250 there were discrepancies in the use of appropriate terminology. For instance, cross-sectional
 251 study design was used with different terms such as cross-sectional survey research design,
 252 cross-sectional mixed methods design, cross-sectional design with the theses in School of
 253 Psychology. In a similar view, the remaining research designs, for example, descriptive,
 254 correlational, and others were given different names. This leads us to the question of
 255 whether students understood the concept of study design clearly or not. The use of two
 256 different designs at a time would also justify this. For instance, in some theses, two different
 257 designs were stated as the designs of the study. For example, 'descriptive survey and ¹
 258 correlation research design'; 'descriptive and explanatory research design'; 'exploratory
 259 sequential design and cross-sectional survey design'; 'sequential explanatory mixed method
 260 design and cross-sectional mixed method design'; 'quantitative and qualitative design and

¹ Indicates the use of two study designs at a time in an MA thesis.

261 descriptive survey design' was claimed as the research designs in some of the theses. Also,
 262 the research designs were hardly explained in a few theses (see Table 3). From this, it could
 263 be argued that students seem to lack some understanding of how to craft appropriate study
 264 design.

265 With regard to the study tools used, questionnaires and interviews were largely used. For the
 266 quantitative data analysis, both inferential and descriptive statistics were employed even
 267 though inferential statistics commonly used in the method sections of the theses. The data
 268 collection tools such as interview, focus group discussion, document analysis, and
 269 observation were utilised for qualitative data collection. However, in most of the theses,
 270 methods of qualitative data analysis were not stated. Very few theses, (9 out of 36 theses)
 271 had explained "thematic analysis" as the method of the qualitative data analysis (see Table
 272 3). The methods of analysis were inclined to the descriptive and inferential analyses with
 273 little attention to qualitative data analysis. If the students were using the qualitative data as
 274 part of their study, they would not have listed the tools as a means of qualitative data
 275 collection. Sometimes, qualitative data collection instruments were used arbitrarily without
 276 serious consideration on how to analyse and use the data that collected through qualitative
 277 data gathering instruments such as interview, observation, document analysis, and focused
 278 group discussion.

279 In order to examine the sampling employed, the sample theses were grouped into three
 280 categories: reasonable justification, without reasonable justification, and without justification.
 281 21 out of 41 MA theses, determined their sample size with justification. A significant number
 282 of the theses, nearly 18 out of 41 theses did not determine and justify their sample size (see
 283 Table 3). Sampling issues are also at the heart of research. As Leedy and Ormrod [30]
 284 argued, "Sampling is a concern for any researcher, but it is especially so for the researcher
 285 who wants to draw inferences about a large population" [30]. This shows, study power
 286 determination is an area of concern and students need support on how to determine sample
 287 size. The respective academic unit is expected to equip students with the necessary
 288 knowledge and skills in determining their study sample size in the future.

289 In the previous discussion, we have seen the review of theses from the School of
 290 Psychology. The next discussion is about the finding of the review of MA theses from the
 291 Department of Educational Planning and Management (EDPM) as indicated in Table 4.

292 **Table 4: Reviewed MA theses in the Department of EDPM**

Research designs used (n=43)	Tools employed						Data analysis used				Sampling		
	Questionnaire	Interview	Focus group discussion	Document analysis	Observation	test	Descriptive statistics	Inferential analysis	both	thematic	determined with reasonable justification	determined without reasonable justification	not justified
Descriptive (27)	27	23	8	13	6	-	21	2	4	8	3	5	19
Merged/fused design (7)	7	7	1	2	1	-	4	-	3	3	2	-	5
Mixed approaches (4)	4	4	-	-	-	-	3	-	1	1	1	1	2
Correlational (3)	3	2	-	1	1	1	1	2	-	-	2	1	-

Explanatory research design (1)	1	-	-	-	-	-	-	-	1	-	-	1	-	-
Quasi-experimental design (1)	1	1	-	-	1	1	-	1	1	-	-	1	-	1
Total	43	37	9	16	9	2	29	6	8	13	9	7	27	

293

294 As shown in Table 4, most of the MA theses from the Department of Educational Planning
 295 and Management (EDPM) employed a descriptive study design. From 43 MA theses, 27
 296 used descriptive research designs. However, within the same department, different terms
 297 were used to explain the descriptive research designs, namely, 'descriptive survey method,'
 298 'descriptive survey research,' 'descriptive survey research method,' 'descriptive survey
 299 study,' 'descriptive research,' and 'descriptive survey design.' There is no problem with the
 300 use of different terms if the students clearly identify the concept behind the terms. For
 301 instance, if students understand the difference between, design, methods, and approaches,
 302 using different terms interchangeably do not create any problem as the concept is the main
 303 guiding principles. However, the problem lies if the students misunderstood the difference
 304 between those terms, using different terms without understanding the concept will apparently
 305 affect the research processes. This is evident from the review that students did not clearly
 306 conceptualise the terms as the research designs, tools employed and methods of data
 307 analysis were not properly aligned (See Table 4). In line with this, Velentgas, Dreyer [42]
 308 argued that "the choice of study design often has profound consequences for the causal
 309 interpretation of study results" [42]. In spite of this, some of the theses employed
 310 fused/merged research designs (see Table 4), which refers to the use of more than one
 311 study design. This may infer that either student did not fully grasp the knowledge of study
 312 design or did not get supervision. However, the Addis Ababa University Academic Senate
 313 legislation specifies, "The academic advisor of the graduate student provides advice to the
 314 student both on general academic matters such as course enrolment and choice of
 315 specialization and on the organization and supervision of the student's research and writing
 316 and/or or preparation for a comprehensive/qualifying exam [31]. Therefore, advisors are
 317 expected to guide students to properly structure their study design as it is a foundation of the
 318 analysis and interpretation for the result of a study [30].

319 Concerning the data collection tools used, questionnaires and interviews were mainly
 320 utilised. Other tools such as document analysis, focus group discussion, observation, and
 321 testing were employed as additional means of data collection. Almost, all the theses
 322 employed more than one tool for data collection except one study (Explanatory research
 323 design, see Table 4), which used only questionnaire as data collection instrument. Despite
 324 the use of different data collections tools, the theses widely employed descriptive statistics
 325 (frequency, percentage, mean, and standard deviation) with few inferential statistics, and
 326 thematic analysis for quantitative and qualitative data analysis respectively. If we take the
 327 descriptive study design (see Table 4), as an example, 23 interviews, 13 document
 328 analyses, eight focus group discussions, and six observation utilised in the 27 MA theses.
 329 These are all qualitative data collection tools. However, only eight theses explained 'thematic
 330 analysis' as the methods of qualitative data analyses, and the remaining were silent about its
 331 methods of analyses. Therefore, from the review, it appears to us that students lack full
 332 understanding about the methods of qualitative data analysis, that is, how to analyse the
 333 qualitative data collected through different tools (interviews, document analysis, focused
 334 group discussion, and observation). In addition, the qualitative data were also rarely
 335 analysed and interpreted in the body of the theses. Most of the results of the theses were
 336 reported using descriptive statistics (percentage, frequency, mean and standard deviation),
 337 and a very few theses (6 out of 43 theses) employed analytic analysis.

338 As shown in Table 4, out of 43 theses, the majority (n=27) did not justify the sample size
 339 employed in the studies. They merely mentioned the simple size, for example, 317 (thesis
 340 32), 347 (thesis 33), and 362 (thesis 13), and so on. A few theses, 7 out of 43 (see Table 4)
 341 determined the sample size without reasonable justification. At some point, the students tried
 342 to mention the percentage, to mention some, 40% of the population (N=547; thesis 1), 50%
 343 of the population (N= 1353; thesis 22), and 63% of the population (N=448; thesis 7) and so
 344 on without any justification of why such a figure was used to determine the study power.
 345 However, 9 theses did determine their study power with reasonable justification. Overall, the
 346 sampling size determination was another area of concern for this academic unit.

347 The finding of the review of MA theses from the Department of Curriculum and Instruction is
 348 presented in Table 5 below.

349 **Table 5: Reviewed MA theses of the Department of Curriculum and Instruction**

350

Research designs used (n=19)	Tools employed					Data analysis used				Sampling		
	Questionnaire	Interview	Focused group discussion	Document analysis	Observation	Descriptive statistics	Inferential analysis	both	thematic	determined with reasonable justification	determined without reasonable justification	not justified
Descriptive (n=11)	11	9	4	7	3	9	1	1	5	1	5	5
Mixed (n=5)	5	5	4	2	1	5	-	-	2	-	1	4
Qualitative (n=3)	3	3	1	-	1	2	-	-	1	-	-	3
Total	19	17	9	9	5	16	1	1	7	1	6	12

351

352 Similar to the Department of Educational Planning and Management, the MA theses in the
 353 Department of Curriculum and Instruction mainly used descriptive study design. As
 354 displayed in Table 5, 11 out of 19 theses employed descriptive study design followed by
 355 mixed methods (n=5), and qualitative study design (n=3). Nevertheless, the research
 356 designs employed were explained by using different terms as stated in the footnotes. In fact,
 357 this could be attributed to different assumptions such as knowledge of study design
 358 (confusion on the difference between, study design, methods, and approaches), language
 359 problem (vocabularies on technical research terms), lack of proper supervision, lack of
 360 critical reading and so on. A similar problem was identified in EDPM and Psychology
 361 academic units.

362 As indicated in Table 5, questionnaire and interview were the primary tools employed in the
 363 theses followed by document analysis, focus group discussion, and observation. Descriptive
 364 statistics was mainly used as the methods of data analysis. Even though different tools of
 365 qualitative data collection were also used, little attention was given to methods of qualitative
 366 data analysis. It is unusual to employ a closed questionnaire as a data collection tool and
 367 descriptive statistics as methods of data analysis in qualitative study design (see Table 5). In
 368 line with this idea, Leedy and Ormrod [30] argued that “Qualitative research involves looking
 369 at characteristics, or qualities, that cannot be entirely reduced to numerical values. A
 370 qualitative researcher typically aims to examine the many nuances and complexities of a
 371 particular phenomenon” [30]. Marczyk, DeMatteo [29] also further argued that “qualitative
 372 research is characterised by the fact that the researcher works on the basis of an open
 373 question” [29]. From this, the students could not have employed numerical values when only
 374 the qualitative approach was cited as the study design. This shows that students lack a full
 375 understanding of the study design and appropriate tools need to be utilised for that design.

376 Regarding the sample size determination, 12 out of 19 theses could not determine their
 377 study power. Only one thesis did determine the sample size with reasonable justification.
 378 The remaining 6 theses attempted to determine their sample size using percentage, for
 379 example, 20% of the population (N=871; thesis 3), 70% of the population (N=1082; thesis
 380 14), 46.6% of the population (N=494: thesis 6), but, they did not justify the proposed percent
 381 for determining the sample size.

382 The finding of the review of MA theses from the Department of Special Needs Education is
 383 presented in Table 6 that follows.

384 **Table 6: Reviewed MA thesis of the Department of Special Needs Education**

Research designs used (n=19)	Tools employed					Data analysis used					Sampling		
	Questionnaire	Interview	Focused group discussion	Document analysis	Observation	Descriptive statistics	Inferential analysis	both	thematic	with reasonable justification	determined without	not justified	
Qualitative (n=10)	4	10	8	2	10	4	-	-	5	1	-	9	
Mixed (n=5)	3	4	2	3	3	4	-	1	-	-	1	4	
Descriptive (n=2)	1	1	-	-	-	1	1	-	-	-	-	2	
Merged/fused (n=2)	2	2	-	1	-	1	1	-	-	1	-	1	
Total	10	17	10	6	13	10	2	1	5	2	1	16	

385

386 As opposed to the previous academic units, which were characterised by more of
 387 quantitative in nature, the theses from this academic unit are marked by qualitative research
 388 methods (see Table 6). As can be seen from Table 6, from 19 theses, 10 of them employed
 389 a qualitative research method. However, different terms were used to explain the qualitative
 390 research method as the main design of the study. In two MA theses, more than one study
 391 design was reported. Similar problems have been identified from the other three sample
 392 academic units.

393 With regard to data collection tools employed, interview and observation were used as the
 394 main tools followed by focus group discussion, questionnaire, and document analysis. Even
 395 though most of the theses used different qualitative data collection tools, only five theses
 396 explained 'thematic analysis' as a technique of qualitative data analysis. From the review, it
 397 seems students could not acquire enough research knowledge and skills because, in most
 398 of the theses, students preferred to keep aside from analysing and reporting the results of
 399 qualitative data. They even preferred to quantify the qualitative data and report using
 400 descriptive statistics (frequency and percentage). The data in Table 6 also confirm this
 401 circumstance, where four theses employed descriptive statistics in qualitative research
 402 methods.

403 When it comes to sampling, 12 out of 19 theses did not determine and justify the number of
 404 research participants (see Table 6). Only two theses scientifically determined their sample
 405 size using appropriate sample size determination formula. Even if, unlike quantitative,

406 sample determination for qualitative research is not rigid in most cases, yet a researcher
407 needs to justify the number of participants needed for the study. Concerning this, Morse [43]
408 propose the following sample determination for qualitative research:

409 If, when using semi-structured interviews, one obtains a small amount of data per
410 interview question (i.e., relatively shallow data), then to obtain the richness of data
411 required for qualitative analysis, one needs a large number of participants (at least
412 30 to 60). If, on the other hand, one is doing a phenomenological study and
413 interviewing each person many times, one has a large amount of data for each
414 participant and therefore needs fewer participants in the study (perhaps only 6 to
415 10). Grounded theory, with two to three unstructured interviews per person, may
416 need 20 to 30 participants...[43].

417 From Morse [43]'s argument, a researcher also needs to justify the sample size for the
418 qualitative research though this was not the case for most of the sample theses of this
419 academic unit.

420 **CONCLUSION AND IMPLICATIONS**

421 This paper reported a review and document analysis of the content of MA theses of four
422 academic units at the College of Education and Behavioural Studies, Addis Ababa
423 University. The analysis focused mainly on the study design used, tools employed, methods
424 of analyses utilised, and sampling determination. The results of the review indicated that the
425 theses from each academic unit had almost similar and repetitive study design. For instance,
426 the MA theses from EDPM and Curriculum and Instruction academic units were
427 characterised by descriptive research designs. The theses of the Psychology academic unit
428 employed more of cross-sectional and correlational research designs while Special needs
429 followed a qualitative research method. This repetitive use of similar study design in each
430 academic unit could be ascribed to different assumptions such as organisational culture (the
431 influence of the research designs of previous MA theses available as references), the
432 influence of instructors who offer research methodology courses, and the influence of
433 supervisors, and students' study design preferences, and so forth. From the four academic
434 units, the theses from the School of Psychology were characterised by analytical research
435 whereas the rest followed a descriptive research approach.

436 The review also revealed that different tools were used to collect both quantitative and
437 qualitative data. However, the qualitative data analysis and report of the results were hardly
438 discussed using appropriate methods of qualitative data analysis, that is, thematic analysis
439 and emerging themes from the data.

440 From the review of the theses, sampling was also found as an area of concern. Most of the
441 theses from the sample academic units did not determine and justify properly the sample
442 size of their studies. However, relatively, the theses from the Psychology academic unit
443 managed to determine the sample of study using appropriate sample size calculation
444 formula.

445 In general, the review of the MA theses of the sample academic units revealed some
446 methodological flaws of the theses because the research designs, tools employed, the
447 analyses used, and sampling of the studies were not well connected. From the finding of the
448 review, almost the homogenous research design is employed by the students of each
449 academic unit in writing their theses. The reasons why students used a similar research
450 design in their respective academic unit left open for further investigation. Students should
451 be supported with the necessary knowledge and skills on how to craft their research design
452 properly, and align the research design with tools of data collection and analysis. They need
453 to be also equipped with how to determine the sample size of the study scientifically. Finally,
454 the researchers suggest that more studies of this kind need to be conducted on this area in
455 the broader context of other higher education institutions in order to build up a more
456 coherent picture of the area.

457

458 **References**

- 459 1. Yizengaw T. Transformations in higher education: experiences with reform and
460 expansion in the Ethiopian higher education system. keynote address to “A
461 training conference on improving tertiary education in Sub-Saharan Africa:
462 Things that work, September 2003. 2004.
- 463 2. Abbott M, Doucouliagos H. Research output of Australian universities. *Education*
464 *Economics*. 2004;12(3):251-65.
- 465 3. Ngulube P. Improving the quality of research outputs in higher education through
466 knowledge sharing and collaboration: a case study. *Mousaion*. 2005;23(1):39-61.
- 467 4. Cadez S, Dimovski V, Zaman Groff M. Research, teaching and performance
468 evaluation in academia: the salience of quality. *Studies in Higher Education*.
469 2017;42(8):1455-73.
- 470 5. Woldegiyorgis A. The Vicious Circle of Quality in Ethiopian Higher Education.
471 *International Higher Education*. 2017(90):18-9.
- 472 6. Office of the Academic Vice President Addis Ababa University. Addis Ababa
473 University graduate programs review report. AAU: AAU Business Enterprise
474 PLC; 2015.
- 475 7. The Federal Democratic Republic of Ethiopia. Higher education proclamation
476 No. 650/2009. *Federal Negaret Gazeta*. 2009:4976-5044.
- 477 8. Kahsay M. Quality and Quality Assurance in Ethiopian Higher Education: Critical
478 Issues and Practical Implications. Twente, the Netherlands: Universiteit Twente;
479 2012.
- 480 9. The Federal Democratic Republic of Ethiopia. Growth and transformation plan II
481 (GTP II) (2015/16-2019/20). Addis Ababa: National Planning Commission; 2016.
- 482 10. Kibret BT, Kebede YD. Researching into Postgraduate Research in Addis Ababa
483 University: Threats to the Future Generation of Social, Educational and
484 Behavioral Researchers. *Bahir Dar Journal of Education*. 2016;16(2).
- 485 11. Addis Ababa University. Addis Ababa University reorganization of structural set-
486 up and governance system of the university. Addis Ababa University: Addis
487 Ababa University; 2012.
- 488 12. Addis Ababa University. Framework document for reforming academic
489 governance Addis Ababa Addis Ababa University; 2011.
- 490 13. Bisrat M. Relevance and quality of research. Addis Ababa: Addis Ababa
491 University; 2013.
- 492 14. Education statistics annual abstract [Internet]. Ministry of Education. 2016 [cited
493 05/02/2019]. Available from: www.moe.gov.et.
- 494 15. Tulu G, Corbett M, Kilpatrick S. Academic Senate Decision and Deliberation
495 Communication in the Context of the Bologna Process: The Case of Ethiopian
496 Public Universities. *Education and Society*. 2018;36(2):77-102.
- 497 16. Mekonnen GT. The current teacher education programs in Ethiopia: Reflection
498 on practice. *Educational Research and Reviews*. 2017;12(6):366-72.
- 499 17. Education Management Information Systems (E. M. I. S). Education statistics
500 annual abstract (1999-2000). Addis Ababa: Ministry of Education; 2000.
- 501 18. Addis Ababa University. AAU at a glance 2019 [Available from:
502 <http://www.aau.edu.et/aau-at-a-glance/>].
- 503 19. Addis Ababa University School of Graduate Studies. Thesis writing, examination
504 and grading guidelines. Addis Ababa University: School of Graduate Studies;
505 2012.

- 506 20. Tefera B, Dessie Y. Graduate student advisement in Addis Ababa University:
507 Perceived level of advising and advisor credibility in the college of education and
508 behavioral studies. *The Ethiopian Journal of Education*. 2014;34(1):33-72.
- 509 21. Zeleke B, editor *The educational research gap in the Education Faculty of Addis*
510 *Ababa University*. National conference on current issues of educational research
511 in Ethiopia; 2000 March 10-11; Adama, Ethiopia. Adama, Ethiopia: Faculty of
512 Education, Addis Ababa University.
- 513 22. Jonker J, Pennink B. *The essence of research methodology: A concise guide for*
514 *master and PhD students in management science*: Springer Science & Business
515 Media; 2010.
- 516 23. Dawson C. *Practical research methods: a user-friendly guide to mastering*
517 *research techniques and projects*. Newtec Place,UK: How to books Ltd; 2002.
- 518 24. Cohen L, Manion L, Morrison K. *Research methods in education*. 7th ed. New
519 York: Routledge; 2011.
- 520 25. Howell KE. *An introduction to the philosophy of methodology*. London: Sage;
521 2013.
- 522 26. Kothari C. *Research methodology: An introduction*. New Delhi: New Age
523 International Publishers 2009.
- 524 27. Saunders MN. *Research methods for business students*. 5th ed. London:
525 Pearson Education Limited; 2011.
- 526 28. Kelley K, Clark B, Brown V, Sitzia J. *Methodology Matters: Good practice in the*
527 *conduct and reporting of survey research*. *International Journal for Quality in*
528 *health care*. 2003;15(3):261-6.
- 529 29. Marczyk G, DeMatteo D, Festinger D. *Essentials of research design and*
530 *methodology*: John Wiley & Sons Inc; 2005.
- 531 30. Leedy PD, Ormrod JE. *Practical research: planning and design*. Essex: Pearson
532 Education 2015.
- 533 31. Addis Ababa University. *Addis Ababa University senate legislation*. Addis
534 Ababa: Addis Ababa University Printing Press; 2013.
- 535 32. Bowen GA. *Document analysis as a qualitative research method*. *Qualitative*
536 *research journal*. 2009;9(2):27-40.
- 537 33. O'Leary Z. *The essential guide to doing your research project*. 3rd ed. London:
538 Sage; 2017.
- 539 34. Corbin J, Strauss A. *Basics of qualitative research: Techniques and procedures*
540 *for developing grounded theory*. Thousand Oaks, CA: Sage; 2008.
- 541 35. Martin M, Stella A. *External quality assurance in higher education: making*
542 *choices*. *Fundamentals of educational planning ERIC*; 2007.
- 543 36. Addis Ababa University. *Addis Ababa University general information*. Addis
544 Ababa: Eclipse Printing Press; 2013.
- 545 37. Geberew T, Demoze D. *Proceedings of Consultative Workshop on the*
546 *Implementation of Postgraduate Diploma in Teaching (PGDT) Program*. Addis
547 Ababa University, College of Education and Behavioral Studies: Addis Ababa
548 University Printing Press; 2014.
- 549 38. Best JW, Kahn JV. *Research in Education (9th)*. New Delhi: Prentice Hall Pl. ;
550 2003.
- 551 39. Mills GE, Gay LR. *Educational research: Competencies for analysis and*
552 *applications*: Pearson Upper Saddle Ridge, NJ; 2012.
- 553 40. Kumar R. *Research Methodology-a step-by-step guide for beginners*. . London:
554 Sage Publications Ltd; 2019.

- 555 41. Pandey R, Ashraf J, Verma MR. Proportional allocation stratum weight for
556 population units under external impact attributed to binomial functions in
557 successive strata. International Journal of Mathematics Sciences and
558 Applications. 2012;2(3):867-72.
- 559 42. Velentgas P, Dreyer NA, Nourjah P, Smith SR, Torchia MM. Developing a
560 protocol for observational comparative effectiveness research: a user's guide:
561 Government Printing Office; 2013.
- 562 43. Morse JM. Determining sample size. Qualitative Health Research. 2000;10(1):3-
563 5.

UNDER PEER REVIEW