

1 **Teaching mise-en-place: student perceptions of the cooking pro forma process**

2 **Title page**

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19 **Teaching mise-en-place: student perceptions of the cooking pro forma process**

20

21 **Abstract**

22 This study investigates the perceptions of registered consumer science students (n=58) and
23 graduates (n=39) from the Department of X¹ at the University of Y (UY) about compulsory
24 forms (e.g. recipe conversions, costing sheets, and work schedules, among others) completed in
25 preparation for three-hour practical cooking lessons. Peer assessment of the forms on the
26 Learning Management System (LMS) allows enhanced student/lecturer engagement during the
27 practical lesson since students are better prepared to deal with high pressure practical lessons,
28 and critical reasoning is instilled.

29 The research was conducted as a qualitative, descriptive case study, collecting the respondents'
30 perceptions via a Qualtrics survey with structured and open questions to understand the
31 perceived value and possible shortcomings of these learning activities. The qualitative data and
32 some descriptive statistics are used to illustrate how respondents perceived the forms, and how
33 current students' perceptions compared to those of graduates who completed the same
34 qualification, but who have since acquired relevant work experience.

35

36 **Keywords**

37 Mise-en-place, peer assessment, hybrid learning, practical module, culinary arts training, food
38 preparation education

39

40 **1 Introduction**

41 “When doing things right, chefs are the guardians of knowledge, of heritage, of traditions”
42 (McBride & Flore, 2019:1). This statement resonated with the beliefs and training regime of
43 lecturers at the University of Y (UY) in South Africa, which does not train chefs per se, but
44 culinary scientists, food and beverage managers, nutritionists and consumer scientists, among
45 others. As a research-intensive institution which offers postgraduate degrees, the university
46 expects lecturers at UY to publish not only in their discipline, but also in the scholarship of
47 teaching and learning (SoTL). This study was conducted to generate new knowledge in engaged
48 scholarship in higher education, where lecturers are expected to integrate the three core functions
49 of teaching, research and community engagement as discussed by Zuber-Skerritt, Wood and
50 Louw (2015).

51 This study was conducted in the Department of X, which trains Consumer and Food
52 scientists. Although this combination may indicate that these degrees are offered in an inter-
53 disciplinary fashion, it is not always the case. Christensen and Stuart (2019:1) mention that
54 “Traditionally, Food Science has not been taught in culinary schools – this discipline has always
55 been one reserved to aspiring scientists (rather than chefs) as part of mainstream University
56 degrees ...”. This is to a certain degree still true at UY, where the Department's Consumer
57 Science division offers degrees in Culinary Science, Consumer Science: Food Retail
58 Management and Consumer Science: Hospitality Management, as well as food-related subjects
59 to dietetics and nutrition students. All the subjects in the food division, Foods (VDS 111, 121,

¹ Detail removed for peer review purposes

60 220, 221) and Culinary Arts (VDS 414 and 424), have a practical component for which students
61 must complete a standardized set of forms – in effect completing their mise-en-place – before
62 coming to class.

63 Mise-en-place is defined as “a culinary process in which ingredients are prepared and
64 organized (as in a restaurant kitchen) before cooking” [[https://www.merriam-
65 webster.com/dictionary/mise%20en%20place#h1](https://www.merriam-webster.com/dictionary/mise%20en%20place#h1)]. “This culinary concept ensures that
66 everything required is ready to hand and that necessary preparation has been carried out in good
67 time” (Schlegel, Flower, Youssef, Käser & Kneebone, 2019:1). The authors also say that mise-
68 en-place goes beyond the physical actions of putting things in place and ensuring a well-
69 regulated workplace; it also signifies a much higher cognitive process of thinking in a specific
70 way, so that “doing” encompasses the values of “orderliness, professionalism and respect for
71 materials and colleagues”. They believe mise-en-place captures a commitment to high-quality,
72 reproducible work which is expressed at an operational level in practical procedures, “such as
73 the use of checklists and other articulations of process”. At a philosophical level, mise-en-place
74 is a “condition, a state of readiness, a ritualised alignment of inner and outer environments which
75 requires mindfulness and deep concentration” (Schlegel et al., 2019:2). “Mise-en-place
76 encapsulates a disposition, a way of working which recognises individuals’ need to take
77 responsibility for their physical working space (their knives, implements, ingredients and tasks)
78 but also the systems within which they work and with which they must conform” (Schlegel et
79 al., 2019:2).

80 Although it is unlikely that the real-life procedures in a functioning kitchen will require such
81 detailed forms, we regard them as critical teaching tools. They are therefore assessed and
82 contribute towards students’ progress mark. Schlegel et al. (2019:2) specifically state that in
83 hospitality environments, the quality of performance depends on mise-en-place, which makes
84 working “more efficient, as each process must be fully thought through”. This pre-determined
85 sense of purpose should empower students to respond appropriately to the unexpected and
86 develop the ability to adapt.

87 Our focus is to train employable students who can function independently in the workplace.
88 Bowen and Morosan (2018:726) estimate that by 2030, robots will make up about 25% of the
89 “workforce” in the hospitality industry. Employees must be aware of the possibility that food
90 could be prepared through “artificial intelligence” that is capable of precisely controlling
91 multiple factors such as temperature, cooking time, colour, smell and taste (Su, 2018:37).
92 Therefore, Schlegel et al. (2019:1) state that students must be taught from early on to work
93 within systems which emphasise effective teamwork, avoid contamination and develop the
94 efficiencies upon which most successful food creations depend. Embedding this type of
95 knowledge in the area of hospitality training therefore seems justified. Given South Africa’s
96 ever-increasing unemployment figures and ample opportunity for growth in the hospitality
97 sector, “the crucial need for qualified and well-trained hospitality graduates who will be of value
98 to the coming development of the hospitality industry” (Goh & Lee, 2018:20) is justified, as the
99 sector remains “strong and resilient during the economic downturn and a fundamental
100 contributor to the economic recovery” (Partington, 2016:1).

101 **2 Literature review**

102 The literature review looks at culinary education and modes of teaching and learning such as
103 blended learning and flipped classrooms.

104 **2.1 Culinary Education**

105 “Culinary artists bring the spice to life! When you watch cooking shows on TV, you can get a
106 sense of the food preparation process and the creativity that is needed to create culinary dishes.
107 However, there are many details, rules, and roles to a culinary arts profession that you may be

108 surprised to learn” is the advice given by a career institute to aspiring students (Bradford-Hall,
109 2016).

110 In the past, chefs were trained through an apprenticeship or in-house experiential training
111 (Rahmawati, 2018:41). Today, few establishments have the time or resources to offer such
112 training. Hospitality businesses now rely on vocational training establishments or cookery
113 schools to supply them with “competent prospective employees who are trained to fulfil their
114 needs” (Ko, 2010:137).

115 Qualifications incorporating cooking as a subject are not immediately associated with
116 traditional universities, although results from a quality evaluation study in the USA showed that
117 most people working “back of house” completed degrees in culinary arts or hospitality
118 management at higher education institutions (Hertzman & Ackerman, 2010:209). Caraher and
119 Seeley (2010:2) state that most cooking or culinary education at traditional universities form part
120 of broader qualifications associated with food: managing the food preparation process;
121 marketing and promotion; product development; retail; dietetic studies and other modern-day
122 food-related careers. The naming of undergraduate culinary training emphasises different
123 aspects, i.e. gastronomy and culinary arts programmes, food and beverage management,
124 gastronomy and culinary arts management (Corbaci, Yilmaz & Gultekin, 2018:54) to name a
125 few.

126 “Culinary arts is a comparatively new area for advanced study in undergraduate education
127 and as such has yet to develop as a subject/discipline with its own appropriate research
128 methodologies. It is an ill-structured knowledge domain which emphasizes the “unfinished”
129 business of action and lacks basic rigor and focus” (Hegarty, 2014:2).

130 Even though technical skill is a critical component of culinary training, an understanding of
131 the chemistry, composition and structure of food as well as food safety and health is critical
132 (Everett, 2016:5). “What many, even in the hospitality professional education sector, implicitly
133 deny is that culinary arts and gastronomy has any valid claim as a knowledge field in higher
134 education. Its promoters are seen as callow intruders staking a place in the higher education
135 timetable, justifying their presence on grounds such as pragmatism, persistence, and utility”
136 (Hegarty, 2014:2). Even though culinary arts training may still be viewed as lacking a theoretical
137 base, many countries “have developed successful educational and training courses leading to
138 culinary degrees” (Hu, Chen & Lin, 2006:94). Culinary curricula are changing from craft-based
139 vocational training to solid academic qualifications, “metamorphosing toward a position of
140 scholarly activity” (Hu et al., 2006:94).

141 Hegarty (2014:2) states that “culinary arts and gastronomy education has received little
142 serious scholarly attention to date: (1) because of the lack of theoretical underpinning that would
143 allow it to become a discipline; (2) because of the difficulty in separating the transitory nature
144 and link with physical work, and “industry needs” from those of “education” in the subject, i.e.,
145 “science,” “art,” or “theory,” and (3) because of the absence of doctoral programs in the field - a
146 major deficiency in culinary arts education”.

147 Culinary education is therefore a relatively new pedagogy in the traditional university
148 environment. “In studying culinary courses, there are still many arguments at hand, such as the
149 integration of contents with science and technology, curriculum schedule, lesson periods, and
150 teaching methods” (Hu et al., 2006:95). Little evidence could be found on exactly how culinary
151 arts and food preparation education is conducted at university level, but large amounts of data
152 are collected on the benefits of increasingly popular online education delivery modes. Lecturers
153 needed to adapt to keep up with the availability of free resources and online platforms, as well as
154 students’ dependency on the Internet (Tiernan, 2015:75).

155 At the University of Y, forms to prepare students for practical sessions are compulsory and
156 they are collected and evaluated for marks. The researchers wanted to establish whether the
157 students recognised the value of these forms, and whether they saw the value of learning with
158 and from their peers as part of the flipped classroom approach (Bachnak & Maldonado, 2014:2).

159 The value of this research is that it can add to the body of knowledge about ways to
160 “promote student learning in classic culinary competencies while evolving with a population that
161 is tech-savvy and requires more than the standard lecture and rote memorization of materials”
162 (Everett, 2016:iii).

163 **2.2 Blended learning and flipped classrooms**

164 Blended learning is viewed as a combination of face-to-face instruction and computer-
165 mediated instruction, and is part of the multiple pedagogic strategies where between 30% and
166 79% of the learning is online (Joaquim & Kandappan, 2018:151). The democratisation and
167 diversification of tools to enhance learning online have seen an increase in the use of blended
168 learning in many universities (Joaquim & Kandappan, 2018:150). Students report that this type
169 of learning environment promotes greater understanding of concepts when applied, which
170 facilitates improved learning outcomes (Everett, 2016:7). Since culinary students appear to
171 favour activities in the kitchen more than their theory classes, integrating technology into the
172 curriculum “may be a way to interest student[s] and generate a more enthusiastic experience”
173 (Joaquim & Kandappan, 2018:150).

174 Bishop and Verleger (2013:5) define the flipped classroom “as an educational technique that
175 consists of two parts: interactive group learning activities inside the classroom, and direct
176 computer-based individual instruction outside the classroom”. They reject all other definitions of
177 flipped classrooms when anything other than videos are used for learning outside of class. We do
178 not necessarily agree with this view. We feel that all sorts of activities, even visiting a restaurant
179 kitchen and making notes about processes, can serve as a pre-class activity. Everett (2016:iii)
180 concludes from her study in culinary arts, using videos in a blended learning environment:
181 “videos in the culinary arts classroom facilitates learning, and though they cannot replace in-
182 class live demonstrations, are beneficial educational accompaniments”. It is of utmost
183 importance to structure the different components of the module to benefit from the affordances
184 of each mode. As Anderson and Krathwohl (2001:6) note, “[i]t is the instructors task to create a
185 coherent narrative path through the mediated instruction and activity set such that students are
186 aware of the explicit and implicit learning goals and activities in which they participate”. At the
187 University of Y, students are encouraged to use on-line videos as research sources to complete
188 the preparatory forms prior to practical classes, but internet data is expensive and not all students
189 have equitable access to devices.

190 It has been established that students learn better and more when they actively engage with
191 the content, and more so when their learning involves peers (Bachnak & Maldonado, 2014;
192 Kinzie, 2005:1). Peer assessment increases the value of collaborative learning by the giving and
193 receiving of feedback, allowing students to learn from their mistakes. This approach also eases
194 the workload of the lecturer (Khalid, 2012) since increased student numbers have made
195 assessment of student work an overwhelming task.

196 Culinary Arts education as a speciality area in a traditional university environment (such as
197 UY) is explicated in the following sections, along with how education today must adapt in order
198 to keep up with the audience. Technology, such as the Blackboard learning management system
199 (LMS@UY), affords lecturers an effective platform to engage with students online via a number
200 of tools. Because of increasing student numbers and pressure to publish, lecturers must optimise
201 their own and their students’ time when deciding on the most suitable mode of delivery.

202 3 Material and Methods

203 3.1 Research design

204 The study was conducted as a qualitative exploratory case study. The aim of this project was
205 to determine the value of specific forms that students are required to complete in preparation for
206 the practical component of certain food-related modules in the Department of X at UY. We
207 wanted input from both current students and graduates to compare their perceptions about the
208 value of the forms and whether they enhance learning, for the different years of study.

209 3.2 Research question

210 Our main research question was: What are students' perceptions about the effort needed to
211 complete the forms in preparation for their practical classes?

212 Sub-question 1: How do students perceive the online submission?

213 Sub-question 2: How do students perceive the effort required to complete the forms?

214 Sub-question 3: How do students perceive different individual aspects of the forms?

215 3.3 Practical kitchen laboratory training at the University of Y

216 The research site is the Department of X, where culinary education comprises both
217 theoretical and practical aspects. The practical lessons of modules in 1st, 2nd and 4th year Foods
218 and Culinary Arts subjects, taken by consumer, hospitality, retail, dietitian and culinary science
219 students, posed a unique challenge. The cohort typically includes between 70 to 80 1st- and 2nd-
220 year students and between 10 and 20 final-year students. These subjects are designed to
221 familiarise students with introductory and advanced art and sciences of general food preparation.
222 Table 1 below shows the cohorts for the different degrees.

223 **Table 1: Student distribution in different degrees**

Aspect	B ConSc (Hospitality Management and Retail Management)	B Dietetics	BSc Culinary Sciences
Modules required	VDS111	VDS111	VDS111
	VDS121	VDS121	VDS121
	VDS220	VDS220	VDS220
	VDS221	VDS221	VDS221
	VDS414 (only Hospitality Mang)		VDS414
	VDS424 (only Hospitality Mang)		VDS424
Enrolments in 2018	Y1 – 38	Y1 – 43	Y1 – 3
	Y2 – 32	Y2 – 39	Y2 – 2
	Y4 – 15		Y4 – 0
Enrolments in 2019	Y1 – 40	Y1 – 45	Y1 – 4
	Y2 – 37	Y2 – 41	Y2 – 3
	Y4 – 9		Y4 – 0

224

225 UY introduced Hybrid Learning (a form of blended learning) more than a decade ago.
226 Although the initial uptake by lecturers was variable, the LMS has matured and is now
227 functional and easy to integrate in any course. The “flip” in this context is meant to prepare

228 students for the pressure and limited time posed by practical lessons, where they have to prepare
229 a three-course meal in a three-hour practical lesson. Literature indicates that 79% of people
230 introduced a flipped classroom design to increase student engagement, while 76% tried it to
231 improve learning (Bart, 2015). We aim to improve student learning and produce work-ready
232 graduates for the food and hospitality industry.

233 This research aimed to investigate the application of structured forms completed by students
234 in preparation for practical classes in various food-related subjects, i.e. the documentation part of
235 the mise-en-place for the practical lessons. The forms were meant to encourage students to
236 engage in careful and meticulous individual preparation for the practical tasks in each session,
237 and to submit their forms online for peer assessment, which helps students and their peers to
238 learn from each other. The aim was to analyse the effectiveness of the particular pre-preparation
239 type of flipped classroom in learning and skills development (Joaquim & Kandappan, 2018:150).

240 At UY, students are provided with a three-course menu – comprising starter, main course
241 and dessert – for every lesson of the 14 weeks of the two semesters per annum. In order to
242 prepare and present such a meal within the allocated time of three hours, students are required to
243 intensively peruse the menu and the corresponding recipes. This is done using a wide variety of
244 resources, such as prescribed and recommended textbooks, conversion tables, pricing software
245 and online tutorials and demonstration videos. Students are required to generate the following
246 forms which are meant to guide them through the practical training lesson. It would be virtually
247 impossible for any student to complete the practical training session without completing these
248 forms beforehand.

249 The preparatory forms include the following:

- 250 1. amended recipes – recipes must be volumised to prepare one portion of food for practise
251 purposes, and to ensure that each student follows exactly the same procedure;
- 252 2. a functional, professional order list divided by category, which can be used by any
253 purchasing or procurement division to release ingredients in the volumes required. Students
254 are taught to draft professional procurement lists adhering to modern hospitality
255 specifications. Standard percentage or factor methods of volumisation are taught and
256 expected to be used;
- 257 3. a functional, professional costing sheet for individual recipes, showing amended volumes
258 and category divisions. Students are required to determine an up-to-date price for each
259 ingredient, reflecting the volume that they will use in their practical class;
- 260 4. a double-action work schedule reflecting the time and equipment available in the laboratory.
261 This document requires students to generate a holistic form showing all the actions needed
262 to produce the menu of the day. For example, the double-action implies that they should
263 consider that while one item might be baking in the oven, they could be doing something
264 else while that item is baking;
- 265 5. a list of lesson-themed culinary terminology. Students must identify, investigate and try to
266 understand all new and unfamiliar terminology that they encounter in preparing their forms.
267 They are also encouraged to discuss such culinary terms with the lecturer and class during
268 the upcoming class or practical lesson;
- 269 6. a performance criteria sheet (product sensory evaluation) for selected items on the menu
270 (only for 4th year students). This form requires students to investigate and determine the
271 ideal sensory aspects – visual appearance, olfactory experience, mouth sensation, taste and
272 possible presentation – of the item. Students are required to provide at least two or more
273 such criteria for each of the selected items, which students and lecturers consequently use
274 during the final evaluation of the prepared food.

275 Students are encouraged to watch various videos showing preparation and cooking techniques,
276 plating styles, and garnish ideas. They are encouraged to identify new trends from recipe books
277 and food magazines before they attempt any of the forms. They are also encouraged to research
278 alternative recipe methods to establish how they could amend recipes given the time and
279 equipment constraints. By completing these forms before the time – the mise-en-place – face-to-
280 face class time is used for more interactive forms of learning.

281 These weekly practical lessons prepare students for their final cookery examination, where
282 they are given a “mystery-basket” of unknown food ingredients from which they have to
283 conceptualise and cook their own menu to show maximum creativity and competence.

284 3.4 Participants

285 Two groups of participants formed part of this study. Group A (n=58) are currently enrolled
286 students and group B (n=39) are graduates reached via Facebook and email. The two groups
287 differed in the following aspects:

- 288 1) Group A is still in our “system” and the answers to the questions were based on their daily
289 experiences. Group B had to rely on memory to answer.
- 290 2) Group A has no work experience yet, while Group B are employed and has real work
291 experience.
- 292 3) Participants in both groups could have had different learning experiences as slight changes
293 occurred over time (e.g. online submission and/or peer marking).

294 Ethical clearance was obtained to collect data from these participants (NAS340/2019).

295 3.5 Data collection tools

296 The data collection instrument was a questionnaire with structured and open questions. For this
297 paper we report on the qualitative data from the open questions which were qualitatively
298 analysed using a thematic analysis approach and open coding to identify patterns (themes)
299 (Braun & Clarke, 2006:7).

300 4 Results, Findings and Discussion

301 Mise-en-place makes practices explicit that may have been hidden or poorly understood, and
302 helps students understand how such pre-preparation aids in preparing and maintaining a
303 workplace, taking responsibility for certain tasks, all the while remaining aware of underlying
304 principles such as hygiene, safety and efficiency (Schlegel et al., 2019:2).

305 The aim of the study was to determine if:

- 306 • our students are adequately prepared for the world of work;
- 307 • they find the completion of the pre-practical forms useful;
- 308 • there are gaps in our training (asked to graduates); and
- 309 • there are aspects which could improve.

310 Table 2 shows a list of all the analysed questions, and also indicates which target group
311 responded.

312 Table 2: Open questions that were thematically analysed

Question	Respondents
Would you like to prepare for practicals in a different way?	Groups A & B

Have you changed your approach in completing the pre-class process during the semester?	Groups A & B
What do you find most useful about completing the pre-class preparation?	Groups A & B
What do you find least useful about completing the pre-class preparation?	Groups A & B
Which skills mentioned in the questionnaire do you rate as most relevant and valuable in your current job?	Group B
Was there anything in your practical document training that was considered lacking when you were employed in your first food-related job?	Group B

313

314 The question “Would you like to prepare for practicals in a different way?” was followed up
 315 by “explain how” if they answered yes. Only 22% answered “yes” and their answers were
 316 thematically analysed, revealing two themes; 1) Approach to learning and 2) Strategies for
 317 convenience. Each of them had three sub-themes.

- 318 • Approach to learning

319 In this theme we identified *group work* as one sub-theme, as Respondent A8² stated: “Doing
 320 the practical document as a group”. A15 was more expressive in saying: “By sitting with the
 321 lecturer and actually having her help us with the work instead of doing it alone and not knowing
 322 what to do.”

323 The second sub-theme was *personal style/template* where a number of participants explained
 324 that the forms were over-complicated and that they would prefer using their own style. A17
 325 explained in detail “I do think it is important to have the converted recipe and method with my
 326 own style work schedule to allow me to start thinking about my plating...”. B3 mentioned: “If
 327 the culinary terms were broad enough to the industry it would have been more helpful ...”.

328 The third sub-theme is *feedback on the forms*. Participants felt that they do not get detailed
 329 feedback on their forms and as such do not know how to improve the documents in future. A7
 330 said: “I don’t feel like I am learning enough as not everything is explained to us. I also feel that
 331 we don’t know what we lose marks for in the prac docs ... thus we absolutely cannot improve”.

- 332 • Strategies for convenience

333 Participants listed a *shorter and faster process* as one way they would like to change the
 334 forms. A13 said: “By having a more summarised document to work with when doing the
 335 practical” and B1 said: “Reduce the amount of work that goes into this document to no more
 336 than five pages... first year students will die if they have to submit these long documents every
 337 week”.

338 The second sub-theme mentioned *videos* as a way to prepare instead of the forms. In the
 339 words of A18: “I enjoy watching videos of chefs making it as I understand better how the dish is
 340 made”.

341 The last sub-theme was *varying the items* to be done. Respondents suggested how the items
 342 could be varied and which ones they deem unnecessary. This item had the highest frequency in
 343 the coding. A10 suggested: “... just completing a work schedule in order to prepare me for my
 344 practical”. A14 was short and sweet: “No images for culinary terms and no sensory criteria”. A
 345 constructive suggestion was shared by A20: “Rather than spending too much time on calculating
 346 costs and compiling a work schedule, prepare detailed methods for the recipes and detailed ideas
 347 for plating”.

² Respondents are numbered and the A and B indicate their respective groups.

348 Data from the question “Have you changed your approach in completing the pre-class process
 349 during the semester?” is shown in Table 3.

350 **Table 3: Responses to their changed behaviour in completing the forms**

Group	Yes	No
A (current students)	34	10
B (alumni)	8	21
Total	42	31

351

352 The question was followed up by asking those who said “yes” to explain what they have
 353 changed. We identified five sub-themes and grouped them in two themes, i.e. *strategies for*
 354 *greater efficiency* and *time management and collaboration*.

- 355 • Strategies for greater efficiency

356 In this theme we identified *personalised forms* as a sub-theme. Participants shared how they
 357 made summaries, notes and a template for doing the cost system faster. A6 said: “As I
 358 completed more documents, I adapted a skeleton or outline that reduced my work...” and B2
 359 stated: “Creating a format which I can fill in the necessary information”.

360 The second sub-theme was a *faster process*. A14 said: “Stopped using full method in the
 361 work schedule”, while A21 mentioned: “By deciding which sections are important to me and
 362 only doing those. I would rather lose marks than do useless time consuming work”.

363 The final theme had to do with *re-using items* from previous practical forms. A15 indicated
 364 that they “Made a large list with all previously used ingredients so I don’t have to find the cost
 365 again”. B2 shared that they “got all the culinary terms of the semester in one session”.

- 366 • Time management and collaboration

367 Students realised that they need to *start in time* and spread the work over a period. A11 said:
 368 “I realized that it takes more time than I think, so I start doing it early”.

369 Participants also realised that effort could be shared by a group and started to *work more*
 370 *collaboratively*. A22 said: “we became more efficient and split the work between partners”.

371 Discussion of our two most interesting questions will follow next. The questions were:
 372 “What do you find most useful about completing the pre-class preparation?” and “What do you
 373 find least useful about completing the pre-class preparation?” The themes for these two
 374 questions will be presented in table format separating current students from graduates, and
 375 showing frequencies. Table 4 reflects the most useful aspects, and Table 5 the least useful ones.
 376 Not all participants answered the questions and some listed more than one aspect, therefore n-
 377 values are given.

378 **Table 4: The most useful aspect(s) in the forms**

No	Most useful aspect	A (n=33)	B (n=22)
1	The entire process as it creates improved understanding, confidence, preparedness and assist in being organized	22	18
2	The work schedule	12	5
3	Ingredient list	3	2
4	Recipes and plating	2	5
5	Learning new terms	1	
6	See actual prices of items	1	

7	Sensory criteria	1	
8	Learning to plan for unexpected problems	1	1
9	Less wastage and mistakes	1	2
10	Demonstrations/videos	1	

379

380 It was interesting to note that responses from Group B to numbers 4 and 9 exceeded the
 381 responses from Group A, which could mean that those two aspects probably are more important
 382 in the workplace. It is pleasing to note that the majority found the entire process useful. Table 5
 383 lists 11 items that were seen as less useful.

384 **Table 5: The least useful aspect(s) in the forms**

No	Least useful aspect	A (n=33)	B (n=22)
1	Picture and referencing culinary terms	21	8
2	Nothing (all items are useful)	6	6
3	Order list and costing	6	3
4	Too time consuming	4	1
5	Not understanding the reason for doing certain items	3	1
6	Plating suggestions	1	
7	Recipe	1	
8	Method	1	
9	Work schedule	1	1
10	Not realistic in terms of types of problems in industry	1	
11	Too repetitive		1

385

386 Assuming the importance of selling food using a cost-effective model, it was interesting to
 387 note that the order list and costing were marked by participants as less useful. Since many
 388 respondents in Group A were first years, they may not have sufficient industry experience yet.
 389 The fact that only 12 students (22% of respondents in this question) said that all items were
 390 useful was lower than expected. However, students' dislike of culinary terms is well-known to
 391 everyone.

392 Some questions were only asked to Group B, since these questions address aspects linked to
 393 their work experience. The first question asked Group B to reflect back and use the items
 394 mentioned in the questionnaire to indicate what they found most relevant and valuable (n=20)
 395 (see Table 2). Being able to construct a proper work schedule came out tops (n=10); Costing
 396 (n=7) was next, followed by time management (n=5) and recipe conversion (n=3). The other
 397 skills listed were "everything", being able to think on your feet, and culinary terms.

398 We asked them: "Was there anything in your practical document training that was lacking
 399 when you were employed in your first food-related job?" Although seven issues were
 400 mentioned, the first one was "nothing was lacking" (n=10). "How to evaluate dishes (sensory
 401 criteria)" was mentioned by two respondents and the other aspects were inventory practices, real
 402 kitchen application, HR management and waste reduction strategies.

403 **5 Implications**

404 We feel that the study elucidated several valuable lessons, which were confirmed by
 405 literature. We share them here in no particular order.

406

407 1) Not everyone has to do everything each week – items can be rotated in a group, as long as
 408 everyone gets an opportunity to do it. Wallace (1997:78) said "Co-operative learning

409 encouraged students to take responsibility for their own learning which could lead to a
410 greater involvement in the learning process (Entwistle, 1992) thereby promoting learning
411 through the interaction within discussion.”

412 2) We need to simplify the pre-practical forms, which take too much time to complete and
413 frustrate students. We realise that proper training cannot be compromised and agree with
414 (Wang & Tsai, 2014:133) when they say “Work attitude and personal attributes are the basic
415 competencies required by the hospitality industry. However, these two competencies are
416 analogous to the bottom of an iceberg: They take time to develop and cultivate.”

417 3) We need to give better feedback on the forms – students need to understand what went
418 wrong and how to fix it. A group session could serve us well, particularly in light of ever
419 decreasing staff in modern universities. (Ambrose, Bridges, DiPietro, Lovett & Norman,
420 2010:5) state “Goal-directed practice coupled with targeted feedback enhances the quality of
421 students’ learning”, and we agree whole-heartedly.

422 **6 Conclusion**

423 At the University of Y, students complete a subject evaluation at the end of each semester.
424 Over the years, students often commented on the volume and complexity of the pre-practical
425 forms, as previously explained. It is therefore noteworthy that even though our sample shared the
426 same perceptions regarding the volume and complexity of the pre-practical forms, they mostly
427 understood the value of it. Graduates in the sample have all had some industry experience and
428 would naturally feel that there is great value in such pre-preparation.

429 At the University of Y, we constantly strive for improved learning and more refined
430 presentation in keeping with international trends. Since evidence from traditional universities
431 showing how culinary education is currently being conducted is scant, not all our evidence can
432 be benchmarked against other studies. However, we believe that the insights gained from this
433 study may be the beginning of in-depth research regarding not only a larger role for hands-on
434 practical experience, but also using online offerings to reduce contact time as part of future
435 training approaches. For the short-term, the evidence showing how we should improve the pre-
436 practical forms to ease the volume of work for students will be useful, and will hopefully
437 strengthen their understanding why such preparatory work using additional resources outside of
438 the classroom is necessary and valuable.

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441

442 **8 Authorship**

443 The paper was conceptualised by both authors. The data collection was done collaboratively.
444 Analysis was done by Louw and verified by Fisher. The paper was written collaboratively.
445

446 **9 Conflict of interest**

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449

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