Irish National Digital Experience (INDEx) Survey

Appendix B. Staff Digital Tools

This Appendix contains a thematic analysis of responses to INDEx Staff Survey Question 17a: *"Please give an example of a digital tool or app you find really useful in your job role".*

Appendix published: 12 October 2020

APPENDIX B

Introduction

The INDEx Survey Findings Report, published in May 2020, was based on analysis of responses by students and staff who teach to all questions on the INDEx surveys. Further analysis has since been completed on the free text responses for selected survey questions.

The thematic analysis presented in this Appendix is an extension of the analysis for Staff Survey Q17a presented in the INDEx Survey Findings Report, Figure 5 (page 36). The initial qualitative analysis for this question presented in the report was based on a random sample of 10% of the total data set. The thematic analysis for Q17a described in this Appendix is based on the entire data set. The analysis is presented and discussed in the following four sections:

- Section 1 presents a thematic analysis of free text responses to Q17a of the INDEx Staff Survey and a discussion of these results
- Section 2 provides a detailed description of the data cleaning and analysis approach

Section 1

Thematic analysis

Overview

Results of the thematic analysis of free text responses to Q17a of the INDEx Survey of Staff Who Teach are summarised here and in the table below.

Survey responses: Of the 4,445 staff who teach who responded to the INDEx Survey, 59% (2,627) responded to Q17a. After data cleaning (described in section 2 and shown in Figure B1 below), 2,584 responses were included in the analysis, representing 98% of all responses to this question and 58% of all staff responses to the survey. Each of these responses listed one or more digital tools or apps, described specific uses of digital tools/apps, and/or described challenges experienced in using digital tools/apps.

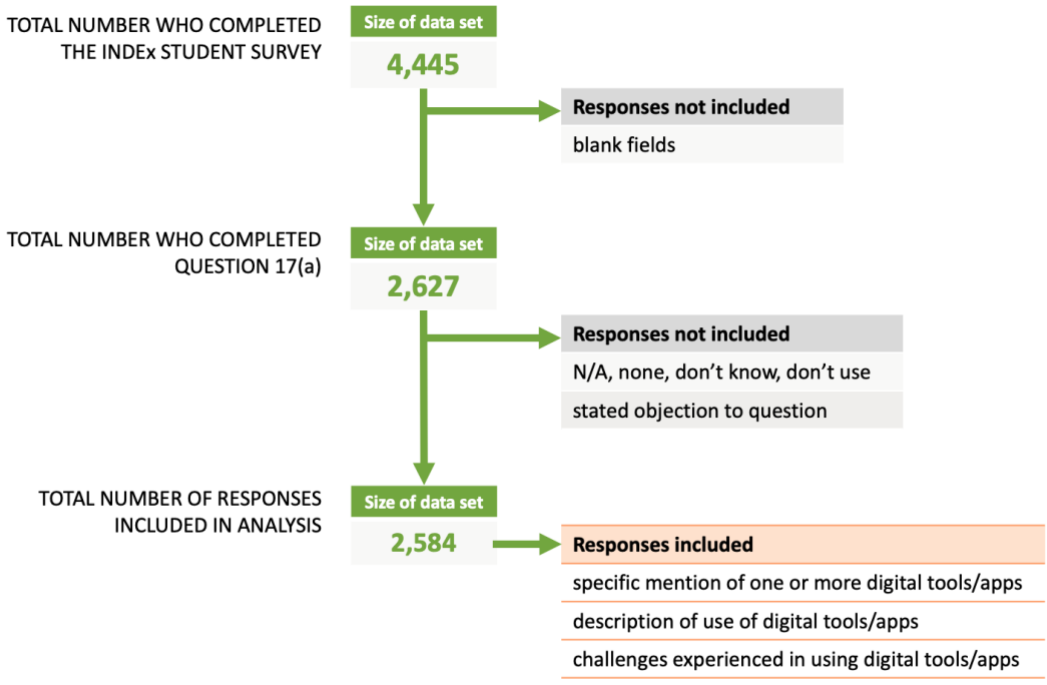

Figure B1. Overview for the process of cleaning responses to INDEx Survey of Staff Who Teach Q17a *"Please give an example of a digital tool or app you find really useful in your job role"*. Response data was included based on the data cleaning criteria outlined in section 2.

High-level themes: A diverse range of digital tools and apps was identified by staff who teach as "really useful" in their job role, with some respondents mentioning more than one. After detailed analysis, a number of clusters of tools was identified, highlighting a wide range of activities (sub-themes) for which digital tools/apps are used. Clustering of these sub-themes resulted in nine high-level themes (listed in order of frequency):

- Creating, editing and sharing digital content
- Polling and quizzing
- Using the VLE
- Communicating and collaborating
- Using the open web and open tools
- Using discipline-specific tools
- Assessment and providing feedback
- Using and managing academic resources
- Using assistive technologies

In addition to these nine high-level themes, all associated with digital tools/apps, two further themes were added: "using devices" for all mentions of the use of digital hardware and "general/other" for general digital tools/apps which were not readily categorised into any of the nine high-level themes identified.

Indicative quotes: Although most respondents listed one or more digital tools/apps, some used the space provided to explain *how* they used these tools or *why* they found them "really useful". Thus, for each of the themes identified in the table below, indicative respondent quotes (where available) are included.

Challenges: Finally, a few respondents used the space provided for this question to identify challenges they have experienced in using digital tools and apps in relation to their job role. These are summarised in the final row of the table.

Thematic analysis

All themes are outlined in the table below, together with sub-themes, specified tools and apps, and indicative quotes from staff respondents to shed further light on the use of digital tools/apps. Themes are listed in order of frequency[1]. A list of top digital tools mentioned by respondents can be found on page 14, and further discussion of the results can be found on page 15.

[1] Frequency for each theme (expressed as a percentage) represents the proportion of total responses mentioning a digital tool/app within this theme.

Appendix B Table. Detail of themes coded from free text responses to INDEx Survey of Staff Who Teach Q17a (*"Please give an example of a digital tool or app you find really useful in your job role"*) based on 2,584 responses, in order of frequency

Theme (frequency)	Sub-theme	Specified tools/apps	Indicative quotes
Creating, editing and sharing digital content (29%)	Video platforms	*Institutional video platforms:* Kaltura, Panopto, UNICAM	*Kaltura for recording and storing videos.*
		Web-based video platforms: BBC, GCFLearnFree, HS Talks, JoVE, Khan Academy, LinkedIn Learning, Pluralsight, TED Talks, TV5MONDE, Vimeo, YouTube	*LinkedIn Learning (Lynda.com) is a fantastic resource that I reckon could be utilized more;* *YouTube for accessing music performance videos;* *I teach media modules and frequently use YouTube clips from films and television series to illustrate key concepts;* *Oireachtas TV (for explaining how legislatures work);* *The ability to use Youtube/online medical resources for medical videos as use for demonstration;* *Youtube (creating short tutorial videos).*
	Creating screencasts/videos, recording lectures	ActivePresenter, Adobe Premiere, Articulate, BaM Video Delay, Camtasia, Celtx, Clarify, Echo 360, Educreations, Filmora, Final Cut Pro, Free Cam, iMovie, Kinemaster, Loom, Open Broadcast Studio, Photo Story, PowerPoint (for recording), QuickTime, Screencast-o-matic, Screenr, SimpleScreen Recorder, SMOTS camera system, Snagit, UbiCast, Video Copilot, VLC, VSDC tools, Windows Movie Maker	*I regularly use screencasting to demonstrate how to carry out library searches for off campus students;* *I use PowerPoint to record my screen and produce videos. I then use VSDC video editor to edit those videos and I place a link to the resulting video on [VLE];* *I use Camtasia to record the lectures and put them on the module's website;* *Making videos using Educreations on an iPad;* *I record with PowerPoint as I don't believe Panopto is user friendly;*

Theme (frequency)	Sub-theme	Specified tools/apps	Indicative quotes
			Video created screen capture is my most useful tool. I'm currently using OBS as it's free and I don't have a license for Camtasia; *SimpleScreenRecorder (to capture lectures using my own hardware as college has no meaningful audio capture in lecture rooms).*
	Interactive lessons	Adobe Captivate, Articulate 360 (Storyline, Rise), Blendspace, Formative, H5P, HotPot, iSpring, Mindtap, Mohavi, Nearpod, PHP, RStudio Shiny, SCORM	*H5P for adding interactivity and tests to videos.*
	Presentations	Beautiful.ai, Keynote, PowerPoint, Prezi	*I rely on PowerPoint;* *Oh dear, so hard to pick one. Boringly, the one I would miss most is PowerPoint (or other presentation software).*
	Audio	Ableton, Audacity, DAW, Garage Band, Librivox, Logic, Max, podcasting/podcasts, Praat, Reaper, Soundcloud, Spotify, voice recorder, Voicethread, Wavosaur	*Audacity for podcast;* *Panopto [video platform] and Audacity but I have to bring mics around with me to class and I have to request the packages to be on the lecturing computer.*
	Infographics/ animations	Adobe Creative Cloud, Adobe Spark, Animoto, Canva, Coggle, JotForm, Loom, Lucidchart, MindMeister, Moovly, Piktochart, Pixtoon, PowToon, Venngage, VideoScribe, Vyond	*Animation / videos for explanation;* *Canva - there are few programmes easily accessible and available to staff for creating visually pleasing infographics, timelines, educational support tools etc for students. This is free (with optional paid elements), easy for format and use, has online collaborative options, can be downloaded in multiple formats and provides really nice templates for a range of documents;*

Theme (frequency)	Sub-theme	Specified tools/apps	Indicative quotes
			I recently found out about Loom and used it when I had to cancel class and I wanted to explain something.
	Demonstrating	AirMedia, Cintiq, Crosstec, Doceri, electronic chalkboard, Explain Everything, IPEVO Visualiser, Mirroring360, remote desktop, Screenleap	*Remote desktop sharing is crucial for demonstrations of software;* *I also use a graphics tablet to draw on videos/slides while I talk. This enhances the output greatly.*
	Smart documents	Book Creator, DevonThink Pro, Drawboard, Foxit Phantom, GoodNotes, LaTeX, Scrivener	*(No additional comments made for these tools)*
Polling and quizzing (22%)		Acadly, Attendence 2, Cram, DirectPoll, Doodle, Google Forms, Kahoot!, Learning Catalytics, Mentimeter, MS Forms, Peerwise, Poll Everywhere, POPin Live, Quia, Quizdom, Quizizz, Quizlet, Sli.do, Socrative, TurningPoint, UniDoodle, Vevox	*Google Forms. I see benefits in creating live surveys for large lectures to garner group opinions, etc.;* *I use Mentimeter for real-time feedback from the class in tutorials;* *Poll Everywhere but my institution does not have it;* *Sli.do, but we don't have institutional access;* *Socrative - but poor wifi in some lecture theatres mitigate against its use at times;* *I used to find TurningPoint very useful but unfortunately it was discontinued! The learning unit here offered browser-based applications (e.g. Mentimeter) as a replacement, but these are less useful and require students to have their phones out during class which one doesn't always want to encourage.*

Using the VLE (20%)		Blackboard, Brightspace, Canvas, Moodle *Specific features mentioned:* discussion boards, embedded library reading lists, tests/quizzes, wikis	*[VLE] is very good for group work and moving work into the semi personal space;* *I have just started to use [VLE] and I have found it of great benefit, would like to use more student interactivity but in my opinion, students are not as pro-active technologically speaking as we often presume.*
Communicating and collaborating (16%)	Webinars/ meetings	Adobe Connect, Big Blue Button, Blackboard Collaborate, Bongo, Google Hangouts, GoToMeeting, Jitsi, Skype for Business, Vidyo, Webex, Whereby, Zoom	*Webex meetings for student feedback and mark-up;* *Adobe Connect breakout rooms;* *Zoom for 'drop-in' sessions;* *Zoom for discussing teaching with peers;* *Whereby for virtual placement visits.*
	Communication, coordination & collaboration	Asana, Basecamp, ChatBox, Discord, Doodle, Edmodo, email, InVision, MS Teams, Moxtra, Overleaf, project management tools, Slack, WhatsApp, Yammer	*Microsoft Teams is helping us to collaborate and stay organised within the team, and build communities of practice;* *Overleaf for shared collaboration;* *Discord - used as a 24/7 chatroom with my classes;* *For discussions, I use Slack primarily with a small group of international colleagues.*
	Social media	Facebook, Instagram, MeWe, Padlet, Pinterest, Twitter	*Twitter (networking, source of information);* *Twitter is the most useful tool for connecting me to peer educators;* *I am a member of an international Facebook group that deals with pedagogy in my field. I also use Twitter for picking up ideas and finding out about relevant approaches;* *Padlet - share resources (videos, notes, images) or generate feedback, sharing.*

Using the open web and web tools (10%)	Cloud applications	Google (Docs, Drive, Scholar, Sheets) Microsoft (Office 365, OneDrive, OneNote, Outlook, SharePoint) Other: Diigo, Dropbox, Evernote, GitHub, GitLab, Inoreader, Jupyter Notebook, MEGA, Pearltrees, Trello	*Google Sheets, Docs and other cloud sharing applications;* *Google Docs + comments and audio comments;* *Evernote: to support student collaborative learning;* *Inoreader for collating student portfolios.*
	Open web/resources	Foster Open Science, Internet Archive, Islandora, OER, open badges, open source digital repositories, open source software, Wikipedia, Zooniverse MOOC platforms: Coursera, EdX, Futurelearn, iTunes U, Udemy	*I use multiple web resources, so the ability to access and search the Web is the single most useful resource for me;* *Open source statistical software;* *Web in general, HASTAC, Hybrid Pedagogy.*
	Personal website/blog	WordPress, Yola	*Dedicated website operated by lecturer independent of the college.*
Using discipline-specific tools (6%)		4D Anatomy, A&P Revealed, Anaconda, Ansys, ArcGIS, Arduino IDE, Aspen Plus, aural training apps, Autodesk BIM 360, Biodiversity Data Capture, BIOVIA Draw, BNF, Building Regulations IE, Business simulations, CAD/CAE, Carto, Cell Image Library, ChefSteps, Cisco tools, CNC Simulator, Coach's Eye, CORE, CRM, Desmos, Duolingo, Eclipse IDE, EconLab, EHOA, electronic lab notebook, Field Area Measure, Fritzing, GeeksforGeeks, Geogebra, GIS, Golden Software Surfer, GW_Chart, HSELanD, HTML/CSS validator, Hudl, Inkscape, ISOUG, JavaScript, JSmol, Justis, Kenhub,	*Because of my discipline, I use ArcGIS Online as a key learning and teaching tool for students;* *Digital Media apps, useful for teaching small basics of editing;* *The Pocket Heart app to explore cardiac anatomy, physiology and pathphysiology.*

		LabVIEW, Le Nouvel Obs Conjugaison, LearningSpace, logainm.ie, Maple, Mastering Chemistry, Mathematica, MATLAB, Medscape, Memrise, Merck vet manual, Multisim, NCTM Illuminations, Numbas, Onodo network visualisation, Orthobullets, Packard Humanities, PathXL, PhET simulation, Pocket Heart, Prometheus, Protégé, Python, Radiology Masterclass, RapidMiner, Repl.it, Reverso, SciScanner, Sefaria, Sibelius, Sketch Engine, Sketchup, SolidWorks, Stack Exchange, The Chicago Homer, Unity 3D, UpToDate, Vernier Graphical Analysis, Westlaw IE	
Assessment and providing feedback (4%)	Correcting assignments, providing feedback, plagiarism checking	CATME, Google Classroom, McGraw Hill Connect, Plagiarism Checker X, proctoring apps, Speedwell eSystem, Turnitin (including GradeMark, Turnitin Feedback Studio), Urkund, ZipGrade	*I find Turnitin very good for grading and feedback however I find the interface with [VLE] is not easy to manage;* *Online rubrics in gradebook app in [VLE] for fast formative feedback;* *Voice recording of informal feedback at [VLE] Turnitin;* *Ability to give audio feedback in our VLE - easy and quick.*
	ePortfolios	e-portfolios, Mahara, PebblePad, Seesaw	*(No additional comments made for these tools)*

Accessing, using and managing academic resources (3%)	Library	*Institutional library resources:* databases (e.g., ACM, EBSCO, Emerald, IEEE, JSTOR), e-books, e-textbooks, journals, LibGuides *Library-related resources:* Artstor, BrowZine, Inkling, LibApps, PubMed, ResearchGate	*Library reading list service integrated with VLE.*
	Reference management	Endnote, Mendeley, Papers3, RefWorks, Zotero	*(No additional comments made for these tools)*
General/other (3%)		Ad Manager, Adobe Acrobat, Androsensor, argument mapping, Atom, barcode reader, calendar apps, careers sites, data logging, decision making, dictionary, digital storytelling, eduroam, Excel, Lanschool, mind mapping, Minitab, notetaking, photo editing, Pocket, QR apps, Stata, Wolfram Alpha	*(No additional comments made for these tools)*
Using assistive technologies (1%)		Grammarly, Livescribe smartpen, MS Word Speak, Naturally Speaking, Office Lens, Otter.ai, Read Write Gold, Seeing AI, SEN, voice recognition	*I access disability and SEN websites and EBSCO;* *Accessibility tools in Office 365 - Immersive reader.*
Using devices (1%)		Blu-Ray player, camera phone, document camera, document reader, electronic chalk, interactive laptop, overhead projector, Raspberry Pi, stylus pen, tablet (including iPad, Surface Pro), whiteboard	*I use a tablet instead of a whiteboard which I find useful in conjunction with PowerPoint;* *A very simple one: camera phone to capture work on whiteboards (a digital white board would be great).*

Challenges (1%)	Connectivity Institutional access Time		*CATME was useful, but it's no longer free;* *Learning Catalytics is one of the most useful digital tools I have seen, but I have not been able to use it in the classroom, since my current and past institutions do not provide access to it;* *I see the potential of live polling, though I haven't found the time to become comfortable with it and so don't use it;* *I have no idea currently - I have no time to get informed about new developments due to essential workload;* *I can't even get reliable internet in many classrooms. It is 1975;* *I would love more personalised, face to face opportunities to develop my digital skills;* [See challenges also cited in some responses above].

Top tools

The following fifteen tools were mentioned most often by staff respondents to Q17a (*"Please give an example of a digital tool or app you find really useful in your job role"*):

Digital tool/app	Theme	No. times mentioned
Moodle	VLE	284
YouTube	Creating/editing/sharing digital content	149
Kahoot	Polling/quizzing	144
Mentimeter	Polling/quizzing	139
Google	(multiple themes)	120
Blackboard	VLE	106
Socrative	Polling/quizzing	96
Adobe	Creating/editing/sharing digital content	85
Padlet	Communicating and collaborating	71
Canvas	VLE	59
Camtasia	Creating/editing/sharing digital content	55
Twitter	Communicating and collaborating	49
Zoom	Communicating and collaborating	49
Turnitin	Assessment and providing feedback	48
Panopto	Creating/editing/sharing digital content	45

Discussion of findings

Q12a on the INDEx Survey of Staff Who Teach asked respondents to give an example of "a digital tool or app you find really useful in your job role". The digital tools and apps mentioned by staff were summarised within the following high level themes, in order of frequency[2]: creating/editing/sharing digital content (29%); polling/quizzing (22%); using the VLE (20%); communicating and collaborating (16%); using the open web and open tools (10%); using discipline-specific tools (6%); assessment and providing feedback (4%); using/managing academic resources (3%); general/other (3%); using assistive technologies (1%); and using digital devices (1%). In addition 1% of responses identified challenges experienced with respect to using digital tools or apps.

The results for this question were compared with two other sets of findings – separate but related: the INDEx Student Survey and the Ed100 Top Tools for Education.

INDEx Student Survey. The INDEx Student Survey included two questions related to the analysis in this Appendix: Q12a. *"Please give an example of a digital tool or app you find really useful for learning"* and Q17a. *"Please give an example of a digital activity you have found really useful on your course".* The initial qualitative analysis for these questions is contained in the INDEx Survey Findings Report, Figure 4 and Table 8 (pp. 33-34). More detailed analysis was conducted for Q17a; this analysis can be found in INDEx Appendix A. Student Digital Activities. Comparing the INDEx student and staff results:

- The top[3] three areas of digital activity identified by staff who teach were creating/editing/sharing digital content, polling/quizzing, and using the VLE. These are similar to the top[4] three digital activities identified by students, i.e., polling/quizzing, accessing the VLE, and accessing learning material.
- 'Communicating and collaborating' were identified by both students and staff who teach in their top five most useful digital activities.
- Both students and staff who teach identified 'using discipline-specific' tools and software as useful, with somewhat more emphasis on this by staff than students.
- Other digital activities identified by students and staff were similar also, but with different emphases based on different areas of focus by students (on learning) and staff (on teaching and supporting teaching and learning).

[2] As noted earlier, frequency (expressed as a percentage) represents the proportion of total responses mentioning a digital tool/app within this theme

[3] "Top" here describes the areas identified most frequently by staff respondents when asked to give examples of a digital tool/app they find "really useful for your job role".

[4] "Top" here describes the areas identified most frequently by student respondents when asked to give examples of a digital activity they find "really useful on your course".

Ed100 (2019). The 'Top 200 (Digital) Tools for Learning' list is compiled annually by Jane Hart, based on the results of an open, online international survey (see www.toptools4learning.com). The 'Top 100 Tools for Education' (Ed100) is a subset of this list, comprising the tools used by educators and students in higher education.

Although not directly comparable (as Ed100 respondents include both students and staff) the results of the two surveys show some similarities. Included in the top fifteen tools for both were YouTube, Google, Kahoot, Padlet, Twitter, Zoom and various digital content creation tools. There were some difference as well. Staff respondents to the INDEx Survey placed more emphasis on VLEs and polling/quizzing apps (including Mentimeter and Socrative). Staff and student respondents to Ed100 placed more emphasis on WhatsApp, OneNote, WordPress and Facebook. These tools were not absent from INDEx staff responses, but they were lower down the list.

Final note

Overall, we wish to note that the thematic analysis presented in this Appendix is based on the judgement and interpretation of National Forum researchers and other staff. Many digital tools and apps can be considered to relate to more than one theme, and themes themselves may be conceptualised in different ways. The aim of this analysis is to offer some ways to interpret the responses to this question, as well as to stimulate further discussion, consideration and analysis of these valuable results.

Section 2

Data cleaning and analysis approach

Overview

This section is included for benefit of those who may wish to replicate this qualitative analysis for their institutional data set(s). We outline the data cleaning and analysis approach for Q17a of the INDEx Survey for Staff Who Teach.

The following steps were taken for data cleaning and analysis for responses to Q17a:

Step 1. Data cleaning

Step 2. Responses clustered into tools used for related activities, i.e., sub-themes

Step 3. Sub-themes clustered into high-level themes

Step 4. Indicative quotes identified for each high-level theme

Step 5. Discussion of findings

Step 1. Data cleaning

Of the 4,445 staff who teach who responded to the INDEx Survey, 59% (2,627) responded to Q17a: *"Please give an example of a digital tool or app you find really useful in your job role"*. For the purposes of qualitative analysis of these responses, it was decided to include all responses that listed one or more digital tools or apps, described specific uses of one or more digital tools/apps, or described the challenges of using digital tools/apps. Forty-three responses did not include any of these. These included responses such as "N/A"; "none"; "not sure"; "no useful ones"; "can't think of any"; "don't know any"; "don't use any"; "doesn't apply to my role"; and "?". Two responses expressed objection to the question: "digital is not defined here" and "poorly phrased, difficult to answer the question with any degree of honesty". The process of data cleaning recorded and then removed these responses from further analysis. Following this step, the data set included 2,584 responses, representing 58% of total responses to the staff survey (and 98% of all responses to this question).

Step 2. Responses clustered into sub-themes

Data were analysed in an iterative manner using open, inductive coding methods. Tools were clustered according to their general purpose. This process continued until no new

clusters could be identified. These clusters (called sub-themes), each identifying general digital activities or tool types are listed in the second column in the table in section 1.

Step 3. Sub-themes clustered into high-level themes

Next, the sub-themes were clustered into high-level themes, eleven in total. An additional theme, 'Challenges', was added to include responses in which respondents indicated challenges they encountered in using digital tools/apps.

Step 4. Indicative quotes identified for each high-level theme

Most staff responses to this question mentioned one or more digital tools or apps only, without any explanation. Some responses, however, including additional information to describe how or why particular digital tools were used. Several of these responses were selected within each high-level theme to shed additional light on staff responses. Indicative quotes are shown in the final column of the table in section 1.

Step 5. Top tools identified

The top fifteen individual tools mentioned by respondents were also identified, along with the thematic categorisation of each. See 'Top tools' in section 1.

Step 6. Discussion of findings

Finally, a brief discussion of findings was completed based on the thematic analysis of results and comparison with results from the INDEx Student Survey and the Top Tools for Learning. See 'Discussion of findings' in section 1.