

2022-06-02

## Don't underestimate the power of the Pen

John McGrory

*Technological University Dublin*, [john.mcgrory@tudublin.ie](mailto:john.mcgrory@tudublin.ie)

Follow this and additional works at: <https://arrow.tudublin.ie/ijap>

---

### Recommended Citation

McGrory, John (2022) "Don't underestimate the power of the Pen," *Irish Journal of Academic Practice*: Vol. 10: Iss. 1, Article 12.

doi:<https://doi.org/10.21427/77tp-zq47>

Available at: <https://arrow.tudublin.ie/ijap/vol10/iss1/12>

## Don't underestimate the power of the pen.

Author 1

**Conference Key Areas:** Design.

**Keywords:** Human-Factors, Attendance, Stereotypes, Attendee, Performance.

### INTRODUCTION

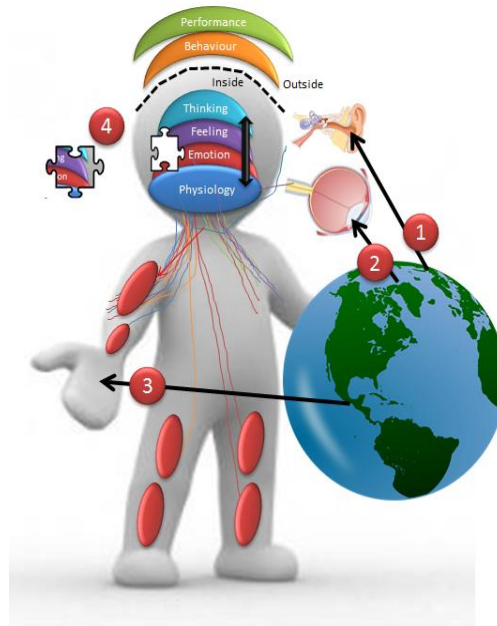
The concept of attendance relates to the identification of a person (attendee) being *present* at a specific event. Common examples of attendance logs are role calls, swipe cards or sign-in sheets. The act of collecting attendance merely identifies who attended the event, nothing more. So, could an attendance mechanism be leveraged to be more engaging? Is it possible for an attendance framework to be developed to persuade attendees to have a higher level of engagement in a low cost, ethical and efficient way? This research proposes that through carefully engaging human factors, it is possible to provide a framework, where the attendee believes they are more in control, feels a comforting, supportive sense of belonging to a group, have a sense of inner competitiveness, and as a result could be encouraged to attend events more frequently.

### 1 OVERVIEW

Research has established clear links between absenteeism and attainment at various grade levels and age groups [1, 2, 3, 4]. It shows that students with a high attendance have a higher attainment score. Conversely, other research has also shown that, as the learning material becomes more multifaceted, then just being present is not enough, as these problem paradigms require an increased level of attention and critical thinking for the learning process to continue [5, 6, 7]. The research has shown using divergent and agile activity tests that lower scores have been encountered as the level of standardised testing has increased in tandem with attendance. An argument could be made that the level of attendance when tied to a higher attainment score could be associated purely with how one learns to answer the questions, in a way the answer will be graded [5], in a technique similar to "paint by numbers" and not due to an increased level of subject comprehension. Irrespective of which side of the fence you wish to place yourself, this paper focuses on the act of attendance and a framework where

the candidate feels a sense of belonging, empowerment and inclusion within the learning environment.

This paper begins by introducing the human processing mechanism in a simplistic sense so a clear focused discussion can be fashioned, where precise issues can be highlighted for subsequent measurement and discussion. Some examples of existing attendance logging are emphasised. Section 2 discusses some subliminal stimuli triggers that are found in human factors. Section 3 produces a layout that sharpens the tool and finally section 3 provides a conclusion.



*Fig. 1.* A schematic view of an attendee interaction.

### 1.1 Externalised behaviours and performance of humans

What occurs inside the mind to cause observable behaviours and performance? Fig. 1 shows the outline of an attendee beside a schematic earth which includes three sensory elements: (1) hearing, (2) sight, (3) touch. Signals from sensory perceptions travel through the physiological, emotion, feeling, thinking responses, which are all inner body activities, manifesting within actions expressed outside the body through the persons behavior and performance [8]. The emotion, feeling and thinking responses are, for the purposes of this paper, conceptual notions, as an explanation aid, whereas the true physical connections within the brain are provided by electrical pulses through axon, synapses and dendrite firing. Dopamine is associated with pleasures and good gratifying reasoning. Serotonin is connected with a sense of feeling important. Oxytocin is linked to trust and belonging. Endorphins are tied to a short sense of pain-masking pleasure. The figurative jigsaw piece (4), denotes a missing element, sometimes referred to a cipher, as it is considered a secretive or disguised way of coding and decoding beliefs, facts and information. There are schools of thought on the exact process, but all agree a person's measurable behaviour and performance are triggered by the physiological, emotion, feeling and thinking responses.

### 1.2 Standard Attendance Log Formats

To set the scene four types of attendance techniques are highlighted. Obviously, fictitious names are used for illustration purposes.

- (1) *Roll call attendance* Presenter, at the beginning of event, retains possession of the document and verbally calls out the names, and the presenter puts a physical tick or dot in the column as illustrated in Fig. 2.
- (2) *Sign-in blank* A blank sheet is provided with a title of the course and the date handwritten at the top as shown in Fig. 3. The attendee sign their names to indicate attendance.
- (3) *Sign-in formatted* A formal sheet with all the expected attendee's names is passed around the event from attendee to attendee as shown in Fig. 4. As the attendee receives the page they scan down the list of expected attendees, find their name and sign their name on the page.
- (4) *Automated attendance system* A smartphone or similar is loaded with an app as shown in Fig. 5. The phone is then passed around the event and the attendee simply places their card on the back of the phone (or tap) and the software automatically logs the attendance.

Technically, the *function* is to record the attendance at an event, but they each have different *forms* (i.e. layouts and structure) and they each have a different '*fit-for purpose*' aspect stitched into their construction. So the question posed is can any of them provide a framework that is ethically acceptable, affordable and that will aid in supporting attendance.

## 2 SUMMARY OF HUMAN FACTORS

### 2.1 Stereotypes and metaphor

Stereotypes are a form of categorisation that helps to simplify and systematise information. A metaphor is a figure of speech describing an object or action in a way that isn't literally true. But helps clarify an idea through simplification or make a comparison. By employing both stereotypes and metaphors information is more easily identified, recalled, predicted, and

School of Electrical and Electronic Engineering Kevin Street, Dublin 8 Dr. John McGrory DT8888 Group List 2017-18 DT8888 year classlist 17to18_Semester 2 CODE_TITLE_Version1.xls		Date
TOPIC		
Surname, First Name	ID	Group
GROUP A		
1 Shagg, Joe	D8888000	Awesome
2 Doe, Jane	D8888001	Awesome
3 Mouse, Mickey	D8888002	Awesome
4 Simpson, Homer	D8888003	Amazing
5 Duck, Daffy	D8888004	Amazing
6 Coyote, Wile E.	D8888005	Amazing
7 Simpson, Bart	D8888006	Amazing
8 Rogers, Shaggy	D8888007	Amazing
9 Flintstone, Fred	D8888008	Amazing

Fig. 2. Roll call attendance

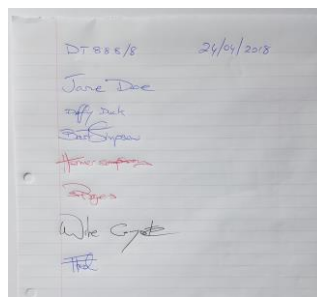


Fig. 3. Sign-in blank

School of Electrical and Electronic Engineering Kevin Street, Dublin 8 Dr. John McGrory DT8888 Group List 2017-18 DT8888 year classlist 17to18_Semester 2 CODE_TITLE_Version1.xls		Date
TOPIC		
Surname, First Name	ID	Spillover
GROUP A		
1 Shagg, Joe	D8888000	
2 Doe, Jane	D8888001	
3 Mouse, Mickey	D8888002	Wile Coyote
4 Simpson, Homer	D8888003	
5 Duck, Daffy	D8888004	Duffy Duck
6 Coyote, Wile E.	D8888005	
7 Simpson, Bart	D8888006	
8 Rogers, Shaggy	D8888007	
9 Flintstone, Fred	D8888008	Fred Flintstone

Fig. 4. Sign-in formatted

reacted to as shown in Fig.6.

## 2.2 Empathic triggers

Research has shown that the sense of human belonging cannot occur without an empathy association [9]. For example, if others have similar struggles with time constraints, difficulty of learning new material or technical skills or social activities, empathy will increase and as a result the sense of belonging. Some of the key triggers to similar struggling individuals are life associations, exam, and exam stress. So inclusion of aspects that help cement this sense of similar struggle will reinforce the awareness of belonging.

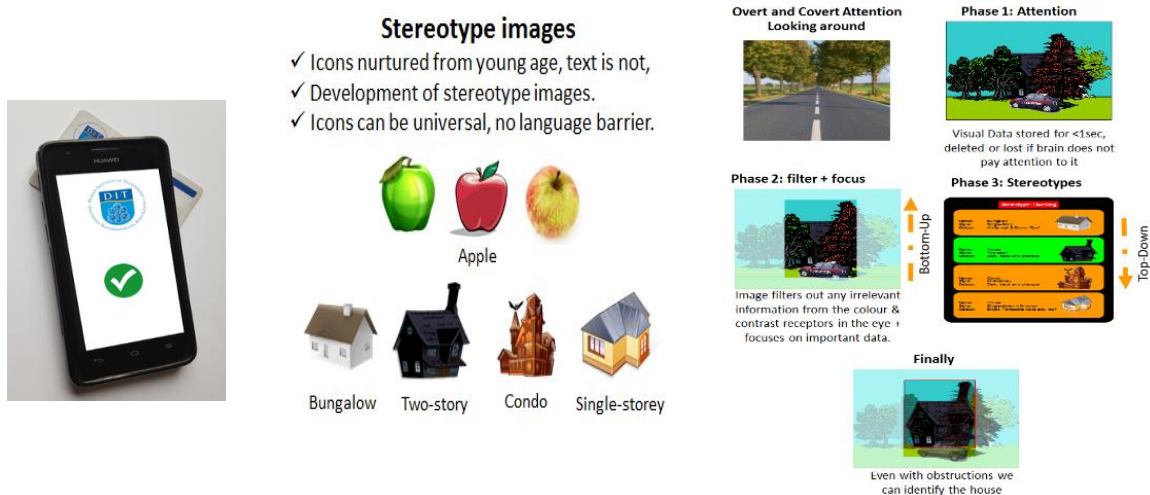


Fig. 5. Automated Sign in App

Fig. 6. Conceptual stereotype images.

Fig. 7. Brain processing for image detection

## 2.3 Subliminal stimuli

Subliminal stimuli are sensory triggers below an individual's threshold for conscious perception. They can be triggered via smell, image, sequence or audio. Fig. 7 illustrates the brain processing steps for image detection, where a person is traveling on a road in search of a particular house. Phase 1: attention, stores the data for <1sec, poses the question 'was there stimuli that warrants attention'. Phase 2: filter and focus where non important information is filtered out. This is a bottom up brain function, where the colour and contrast are passed to the brain. Then in Phase 3: stereotype memories, the brain performs a top down action trying to identify a match.

- |     |                                      |  |
|-----|--------------------------------------|--|
| (1) | Mimetic architecture                 | Also known as 'novelty' or 'programmatic' architecture. It has been successfully implemented for restaurants Fig. 8 (1), treat stands Fig. 8 (2) (4), where the shape of an object to trigger a desire/craving, for food or activity, and bike stand Fig. 8 (3), where the image of the bike stand embodies the service offered. |
| (2) | Brand identification (Icon and Logo) | Icons (also termed infographics) are designed to prompt/stimulate a specific action when seen or demonstrate a particular function. The image embodies an action/event or link to an action/event. Logos reinforce a tribal loyalty and empathic triggers as illustrated in Fig. 9 [10].   |



Fig. 8. Mimetic architecture examples.

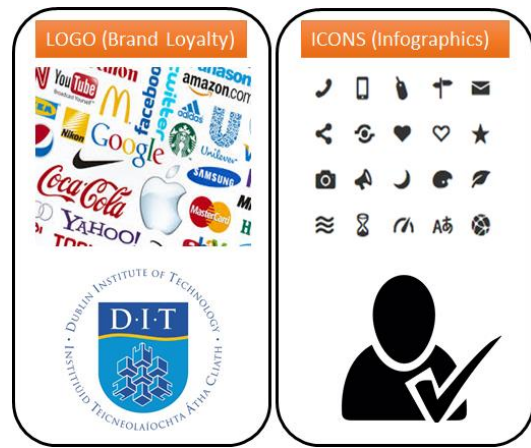


Fig. 9. Logo versus Icons.

## 2.4 Handwriting

Research by Mueller et al compared note taking using a pen to a laptop, with a view to ascertaining the level of comprehension. They found those who took notes in longhand, and were able to study, performed better at comprehension than the others. The longhand cohort took fewer notes overall with less verbatim recording, nonetheless, they achieved better on both factual and higher-order conceptual learning. Taken together, their results suggest that longhand notes not only lead to higher quality learning, but assist in developing a studying strategy in the first place; they also developed a superior strategy for storing new learning material [11]. In addition most people over time, have developed a signature that they believe is unique to them, but also attach an inherent strong inner 'value system' or self-worth ethic to its use. This is why a signature remains on many documents currently in use today, for example, marriage certificates, cheques and other legal documents.

## 2.5 Prioritising

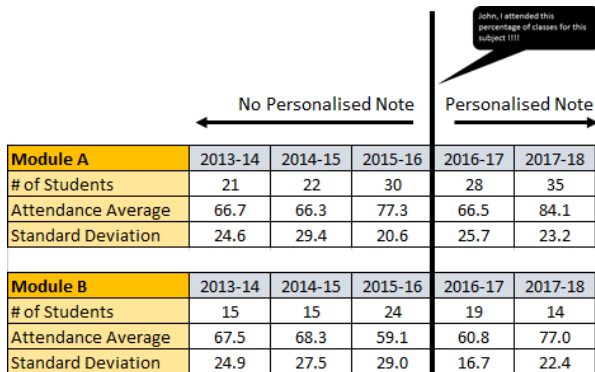
During our lives various, activities, tasks and duties all jostle for our attention. It can feel akin to a metaphorical cargo net holding all our daily obligations, such as, parents, house, children, sport, transport all juggling for space, time and our attention. Sometimes obligations slip through the net and are temporarily forgotten, and additional stimuli is needed, perhaps in the form of an SMS message or email that will trigger an action to give attention again. Could repeated absenteeism and missed assignments be reduced using subliminal triggers hidden in an attendance sheet framework?

## 2.6 Consensus

Research completed by Goldstein et al showed that people will look to the actions, behaviors and performance of others to determine their own [10]. By simply presenting a fact highlighting the reasonable benefit of the action they could alter the behavior of their test subjects to perform that action by 35%. Moreover, if the fact highlighted action taken by comparable peers this action compliance increased to 26%. But if this fact was personalised by indicating that highlighted action included comparable peers and in a similar situation to them there was a 33% increase in the action [10]. In a recent small study at the DIT, attendance data was analysed on two anonymous modules. Both modules ran annually at the same semester (September to January) with lecture duration, times of day and days of the week being similar for each year of the study. The lecture material was not altered for the period of the study and the in-class activities and academics were comparable. The data presented in Fig. 10 covers



a period of three years prior to a single change to the attendance sheet and two years after the change was introduced. The only modification was the inclusion of a callout box with “/ attended this percentage of classes for this subject !!!!” in it. In module A there was an average of 5.2% increase and in module B there was a 3.9% increase in the rate of attendance. This was attributed to the inclusion of this modification on the attendance sheets, which was a low cost and ethically accepted inclusion to alter behaviour.



	2013-14	2014-15	2015-16	2016-17	2017-18
<b>Module A</b>					
# of Students	21	22	30	28	35
Attendance Average	66.7	66.3	77.3	66.5	84.1
Standard Deviation	24.6	29.4	20.6	25.7	23.2
<b>Module B</b>					
# of Students	15	15	24	19	14
Attendance Average	67.5	68.3	59.1	60.8	77.0
Standard Deviation	24.9	27.5	29.0	16.7	22.4

Fig. 10. Attendance statistics with and without personalised note.



Fig. 11. Not Yet, Fail and Pass symbols.

### 2.7 Authority

It has been shown that people tend to follow and obey the ideas of an institute, group or person (influencer) who can be considered credible, knowledgeable and expert [10]. This can occur if the business has an appearance of high quality, perhaps through the way buildings are styled, kept, how staff dress (e.g. police officers and barristers) and the quality of the documents they produce.

### 2.8 Consistency

People feel comfortable with being consistent in actions that they previously did in the past. In most cases an effort has been associated with the initial action and a subsequent decision does not require critical thinking. This consistency principle is improved if the commitment act is voluntary, active and public [12]. If a person begins by performing a small relatively insignificant task, then it's easier to gain acceptance of completing a task of increase significance in the same general area, as it is a consistent action. It's important the steps are not too easy, but with effort are achievable, to maintain the sense of achievement. Negativity associated with failing a test, task or activity inhibits progression. Instead of receiving 'Fail', 'did not pass' or 'X' for a student falling below the required standard, a grade of "Not Yet", as shown in Fig. 11, reinforced the student is on a learning process curve [6].

### 2.9 Commitment

To tie an action to an obligation colleges and medical practices have reported a higher level of commitment, when a person is asked to physically write down an appointment or a personal statement [13]. The act of hand writing stitches into each word a sense of commitment to perform to the best of their ability, when compared to a typed statement.

## 2.10 Layouts



Fig. 12. (1) Nielsen Heat Pattern with F superimposed on image [14, 15], (2) hand written note in western style and (3) same note in Arabic text with right justification.

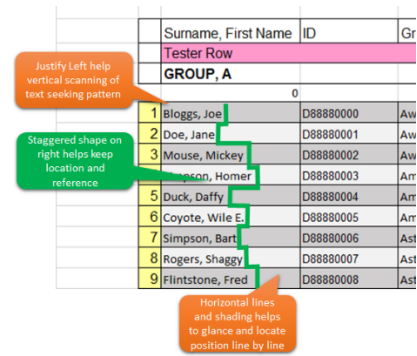


Fig. 13. Justification of text to left and rows of alternating shade.

Research by Nielsen has identified that a person who learnt to read and write in a western world education environment, will automatically scan an interface following an F form profile. Fig.12 illustrates (1) a web page, (2) a hand written note and to show the culture change to visual ques (3) is a mirror F profile relating to the Arabic text format [14, 15]. It can then be shown using the attendance sheet example in Fig 13 that the name of the person is 'surname, first name', justified left with horizontal lines. The use of shading of the horizontal lines increases the ability to locate a specific line.

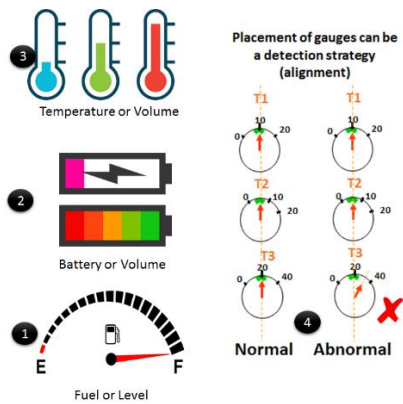


Fig. 14. (1) Fuel dial, (2) battery indicator, (3) temperature gauge and (4) dial arrangement emphasising symmetry.

Figure 15 is a sign-in sheet for the School of Electrical and Electronic Engineering. It includes a sign-in table and a grading table. The sign-in table has columns for Surname, First Name, ID, Date, and Signature. The grading table has columns for various activities and their scores.

Surname, First Name	ID	Date	Signature	Out of 100	Out of 100	Out of 100	Out of 100	Out of 100	Overall
Tester Row			Do Not sign in for anybody else	100	100	100	100	100	100
GROUP, A									
1 Bloggs, Joe	D88880000			40	20	60	60	87	0
2 Doe, Jane	D88880001			10	5	10	10	10	10
3 Mouse, Mickey	D88880002		Mich Mouse	95	70	90	90	85	75
4 Simpson, Homer	D88880003			76	55	68	68	70	68
5 Duck, Daffy	D88880004		Daffy Duck	50	56	45	85	55	40
6 Coyote, Wile E	D88880005			91	75	85	90	70	87
7 Simpson, Bart	D88880006			40	20	30	30	40	25
8 Rogers, Shaggy	D88880007			68	73	70	65	70	72
9 Flintstone, Fred	D88880008		Fred Flintstone	91	68	55	70	70	65

Fig. 15. Sign-in sheet with in-module grading visible to all attendees.

## 2.11 Checklists

A checklist is a list of items required, things to be completed, or opinions to be deliberated, or can be used as a reminder prompt. Since 1969 the National Transportation Safety Board NTSB have recognised the importance of checklists used in many aspects of the aviation industry. This has contributed to its exemplary safety record, due to the simple principle that it is easier to have compliance and adherence to the rules, regulations and good working practice, than not to follow them [16].



## 2.12 Gauge and Dial Indications

Gauges and dials unlike the Boolean type tick ✓ or X, offer an opportunity to illustrate to the observer a finer granularity range of values between a low and high limit. Fig. 14 illustrates a number of gauges in common daily use. At a glance, without any critical thinking, the observer can be informed of a condition (e.g. Red-Warning or Green-Safe) and the measured value (e.g. battery or WIFI strength).

## 2.13 GDPR (General Data Protection Regulation)

The introduction of GDPR in Europe has enormous implications for how organisations: process, store and manage personal data. Personal data is any information that can identify an individual person. So, there is concern that no personalised data can appear on the attendance sheet. For example, attendance sheets might currently be used as a conduit to deliver performance and behaviour (e.g. grades) related information to attendees. All attendee’s would see their name and grade, all the other attendee’s names and grade, and how they related to other attendee’s in the various components of the course which reinforces the detail explained in the consensus, consistency and commitment sections, as shown in Fig.15. The attendee needs to know what they benefit from by being in attendance and completing the tasks to the level and at the correct time and what they stand to lose if they don’t when compared to others in their group. If the sign-in sheet omitted Names or IDs etc. it would increase the isolation of individuals in the sense of belonging to a group. Of course, the attendees of a college are not in a competition environment, they are in an education paradigm (or are they! how successful was an attendee in a module or final grade, could the grade have been improved as the module continued), but similar inner module subliminal triggers could be employed.

## 2.14 Summary.

This section presented a number of human factor components that need to be to the forefront of the argument on attendance sheet design and their affect should be considered as we progress to the proposed template design section.

Attended Lecture	Surname, First Name	ID	Group	Signature
<b>GROUP A</b>				
25%	Blages, Joe	D8888000	Awesome	
25%	Doa, Jane	D8888001	Awesome	
42%	Moose, Mickey	D8888002	Awesome	<i>Mick Moose</i>
86%	Simpson, Homer	D8888003	Amazing	
86%	Duck, Daffy	D8888004	Amazing	<i>Daffy Duck</i>
100%	Coyote, Wile E.	D8888005	Amazing	
25%	Simpson, Bart	D8888006	Outstanding	
86%	Rogers, Shaggy	D8888007	Outstanding	
100%	Flintstone, Fred	D8888008	Outstanding	<i>Fred Flintstone</i>

Fig. 16. Proposed attendance sheet mock-up.

Surname, First Name	ID	Group	Signature	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 6	Activity 7	Activity 8	Activity 9	Activity 10
<b>GROUP A</b>													
1	Blages, Joe	D8888000	Awesome										
2	Doa, Jane	D8888001	Awesome										
3	Moose, Mickey	D8888002	Awesome										
4	Simpson, Homer	D8888003	Amazing										
5	Duck, Daffy	D8888004	Amazing										
6	Coyote, Wile E.	D8888005	Amazing										
7	Simpson, Bart	D8888006	Outstanding										
8	Rogers, Shaggy	D8888007	Outstanding										
9	Flintstone, Fred	D8888008	Outstanding										

Fig. 17. Sign-in sheet with colour/symbol grade indication.

## 3 PROPOSED TEMPLATE

Armed with the summary of different styles and layouts of attendance sheet options from section 1, and the considerable breath of human factor components presented in section 2, we can begin on the architecture of a proposed template for attendance sheets. In this

example it will focus on an attendance sheet for use in a third level education institution, where the modules are lecture based with continuous assessment elements included during the term.

### **3.1 Proposed template design inclusions.**

In this section, each of the propositions are itemised with a link to the description of the underlying inclusion, followed by the intention and motivation element, and finally associated to the human factor aspect as discussed in section 2.

#### **Proposition 1:**

**Description:** Hand out a single page, ensuring it is not on a clipboard and no pen provided.

**Intention/Motivation:** For scripting comfort, a signature is best performed on more than a single sheet of paper. So for attendees to physically sign-in they would need to open their bag, take out a book or copy to lean on, find a pen, so they can sign their name. This aspect reinforces hand writing, which encourages the student to honor the value of their signature, but also puts the attendee in a relaxed position to begin to note take with little or no extra effort needed. Hence, it activates responses such as consensus, consistency and commitment.

#### **Proposition 2:**

**Description:** Official and formal appearance of the document with a specific format/layout combined with a tribal logo of the institute and an infographic, such as, person silhouette with the tick, over the heart as indicated in Fig. 16.

**Intention/Motivation:** When a document appears official/formal and formatted, it portrays an appearance of being from a credible, knowledgeable expert. Thus, when an attendee signs their name they stitch respect and self-worth into the voluntary act. The layout/architecture of the attendance sheet mimics its purpose, stimulating mimetic architecture. Infographic person silhouette is a graphical embodiment of being 'in attendance' is good and honorable and that the attendee belongs to a group or tribe. This proposition reinforces useful triggers such as authority, consistency and commitment.

#### **Proposition 3:**

**Description:** Listing the expected attendees complete with the names justified left, the shaded rows, the attendance %, containing a personalised note and grouping labels with positive reinforcing names as shown in Fig. 17.

**Intention/Motivation:** Grouping the names triggers belonging and loyalty to a tribe. The row shading combined with justified left helps to find name quickly when signing. The attendance % highlights how many events were missed and the inclusion of a colour or symbol if they fall below a designated threshold. It acts as an early falling through the net reminder. It also permits a comparison to others who would be considered by the viewer to be under similar pressures for time whilst on the same course, such as stereotype, empathic triggers, prioritising, consensus, consistency and commitment.

#### **Proposition 4(a):**

**Description:** The inclusion of grades to the right of the signature area for each student as the event progresses, as opposed to only disclosing results to attendees via an online or similar reporting system.

**Intention/Motivation:** Agreed, this is somewhat argumentative for privacy concerns, but there is considerable merit for considering their inclusion. It promotes an inner attendee competitive edge through emotion, feelings and thinking that could, if present, alter the behavior and performance of the attendee. Considering the issue that 'other students in my year, on this particular module did the same, better or worse as I did' is very adaptive and empowering. It gives the attendee an opportunity alter their next grade, when compared to their peers. This proposition reinforces a number of useful triggers such as stereotype, empathic triggers, authority, consistency and commitment.

**Proposition 4(b):**

**Description:** If 4(a) is problematic within the scope of GDPR and institutional standards then a symbol, colour or bar graph indication could be considered.

**Intention/Motivation:** The use of the bar graph indication gives the attendee a chance to identify, at a glance, how much of the module they have completed so far reinforcing commitment and check-list. The attendees can see how others in the tribe are doing reinforcing empathic triggers, prioritising, consensus and consistency.

**Proposition 5:**

**Description:** Personalised message within the shape of the document.

**Intention/Motivation:** The inclusion of a callout box close to the top left section of the document stating “I attended this percentage of classes for this subject !!!!” is located in the most viewed quadrant of the attendance sheet as discussed in layouts. A reinforcing, encouraging, message could also be included on the row with the attendees name after a grade, such as “Well done” or “Not there yet”. It gives the impression the sheet is a live aesthetic interaction. This proposition reinforces triggers such as empathic triggers and consistency.

**3.2 Summary.**

As we complete this section it is important to summarise the contributions being expressed. In Fig. 18 a pseudo mockup of the finished attendance sheet is presented. (1) Refers to the formal layout of the sheet with the explanation text, icons, logos and personalised comments. (2) Relates to the signature of the attendee. (3) Highlights when and where the lectures, laboratories are on and being held. (4) Highlights the date of this event hand written by the person hosting the event. (5) Includes the attendance percentage using a colour grading system. (6) Signifies the grading of the individual. (7) Shows the list of expected attendee’s names in the group, justified left with striped rows to aid separation.

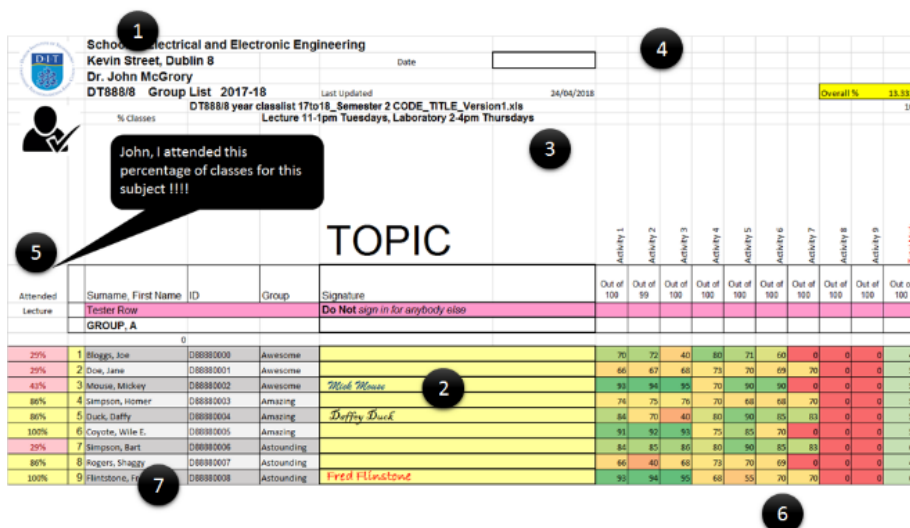


Fig. 18. Example of a sign-in sheet with colour related grading.

**4 CONCLUSION**

In the current climate of modernism, there is a drive to employ technology to automate many mundane procedures. Sometimes, the motivation to do this task is to free up time and effort, so more complex activities can be undertaken, or simply eliminate the boring chores. Nonetheless, it is imperative not to lose sight of other non-obvious supplementary cues that are associated with this procedure. For example, in the case of this research the attendance sheet is for the express purpose of identifying attendees at particular events. Conversely, it is also a single point of contact with the attendees of the event. So by automating the procedure,

almost anonymising it to a card tap, we eliminate some of the human factor prompts normally associated with the task. The issue of how to automate the conversion of signatures to an electronic attendance “value” has not been discussed, as there are many solutions available. It is not the intention for all the triggers to be absorbed by all attendees every time they look at the attendance sheet. That was never the purpose, in the same way as a person will only notice aspects of their environment that they have been blind to because of its familiarity, when they return from a trip away and reengage with the environment using a critical thinking viewpoint. More importantly, the framework was to have a rich re-stimulating affect, where every time the attendance sheet is observed, something new and supportive from a human factors perspective can be perceived to help with attendance in an efficient, ethical and cost effective way.

There is an argument with online teaching delivery that the attendance sign sheet will become a relic of a bygone era. But attendees, who simply view a delivery with their hands folded are not employing critical thinking activities, when compared to a person sitting up, taking notes, irrespective of the delivery mechanism. Hence, we should never underestimate the power of the pen.

## 5 REFERENCES

- [1] DfE, “The link between absence and attainment at KS2 and KS4 2013/14 academic year,” Department for Education, Research report March 2016. Reference: DFE-00089-2016, 2016.
- [2] NAEP, “Reading Framework for the 2013 National Assessment of Educational Progress,” National Assessment of Educational Progress, National Assessment Governing Board US Department of Education., 2013.
- [3] E. Burd and B. Hodgson, “Attendance and Attainment: a Five Year Study,” *Innovation in Teaching and Learning in Information and Computer Sciences*, Vols. vol. 5, no. 2, no. doi:10.11120/ital.2006.05020004., p. 1–12, 2006.
- [4] J. Colby, “Attendance and Attainment,” in *5th ICS-LTSN. Annual Conference*, University of Ulster, 2004, 31st-2nd September.
- [5] K. Robinson, *Out of our minds*, Capstone, ISBN 9780857081490, Reprinted in 2011, First printed 2001.
- [6] Dweck C., “RSA ANIMATE: How To Help Every Child Fulfil Their Potential, TED talk seen on YouTube video,” 2015. [Online]. Available: <https://www.youtube.com/watch?v=Y19TVbAal5s..> [Accessed 3 5 2017].
- [7] G. Land and B. Jarman, *Breakpoint and Beyond: Mastering the Future Today*, published by ., ISBN-10: 0962660523. ed., Leadership 2000 Inc, 1998.
- [8] D. G. Myers, *Psychology*, 9th ed., Worth Publishers, ISBN-13: 978-1429215978, 2010.
- [9] Maslow A.H., “A Theory of Human Motivation,” *Psychological Review*, vol. 50, no. 4, 1943.
- [10] N. Goldstein, R. Cialdini and V. Griskevicius, “A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels,” *Journal of Consumer Research*, vol. 35, no. 3, pp. 472-482, 2008.
- [11] P. Mueller and D. Oppenheimer, “The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking,” *Psychological Science*, vol. 25, no. 6, p. 1159–1168, 2014.
- [12] S. Martin, N. Goldstein and R. Cialdini, *The Small Big: Small Changes That Spark Big Influence*, ISBN-13: 978-1455584253 ed., Grand Central Publishing, 2014.
- [13] S. Martin, S. Bassi and R. Dunbar-Rees, “Commitments, norms and custard creams – a social influence approach to reducing did not attends (DNAs),” *Journal of the Royal Society of Medicine*, vol. 105, no. 3, p. 101–104, 2012.
- [14] J. Nielsen and K. Pernice, *Eyetracking Web Usability*, ISBN:0321498364 ed., New Riders Publishing, 2009.
- [15] J. Nielsen, “F-Shaped Pattern For Reading Web Content,” 2006. [Online]. Available: [www.nngroup.com/articles/f-shaped-pattern-reading-web-content-discovered](http://www.nngroup.com/articles/f-shaped-pattern-reading-web-content-discovered). [Accessed May 2010].
- [16] A. Degani and E. Wiener, “Cockpit checklists: concepts, design, and use,” *Human Factors*, vol. 35(2), pp. 28-43, 1993.