

WHAT IS THE BEST WORKFLOW BETWEEN DESIGNER AND DEVELOPER?

Although every digital project is different, a fully integrated workflow is the best because it allows all members of the team to communicate their expert opinions throughout a

CONTENTS

1.0	ACKNOWLEDGEMENTS	3
2.0	ABSTRACT	4
3.0	INTRODUCTION	6
4.0	LITERATURE REVIEW	8
4.1	<i>Early Web Workflow</i>	8
4.2	<i>Individuals Skillsets and Workflows</i>	12
4.3	<i>Team Communication</i>	17
4.4	<i>Team Workflow</i>	20
4.5	<i>Summary</i>	27
5.0	METHODOLOGY	28
6.0	RESULTS	33
7.0	DISCUSSION	41
8.0	CONCLUSION	44
9.0	SOURCES	45
9.1	<i>References</i>	45
9.2	<i>Bibliography</i>	56
10.0	APPENDIX	63
10.1	<i>CDG Questionnaire</i>	63
10.2	<i>Time Plans</i>	71

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Finally, I would like to thank Group CDG for completing my questionnaire and allowing me to study their workflow.

2.0 ABSTRACT

The aim of this study is to find out what is the best workflow for designers and developers to collaborate and work together. This subject was decided on because I have gained a post graduate role in industry, and wanted a better understanding of how teams can interact with each other more efficiently.

The secondary research reviewed the history of web design and development, identifying some of the limitations and workflow standards that have been used as the industry has matured. The skillsets and processes of the professionals working in industry were analysed. The communication styles and techniques were researched. Finally, the four main workflow styles were studied. This research was drawn from opinions and experiences of professionals working in industry taken from blogs, articles and books. This research was undertaken to gain knowledge into the practices used in industry to provide a basis for the primary research. It also allowed for predictions to be made about workflows that could be developed in the future.

For the primary research, Group CDG, the company I am joining as a full time Digital Designer, allowed me to conduct a study through a questionnaire with their design and development teams. This uncovered the skillsets of individuals, communication style and workflows they practice. This allowed comparisons between the results and literature review to be made. It also gave an insight into the environment I would be entering after university.

The main findings of the study were an iterative Agile style workflow is the current industry standard, however research suggests that this will develop

into a Fully Integrated workflow as the industry evolves. The main reasons for this are believed to be more emphasis on team collaboration, merging skillsets and better outcomes.

The findings of this study are significant to digital technology businesses who need to update or refine their workflow. It is also important for individuals within the industry as it reveals better ways to work as a team.

3.0 INTRODUCTION

When I graduate, I will be re-joining the team at CDG, where I did my work placement, as a Graduate Digital Designer. I will be a part of the teams, that design and build digital products. These teams will be made up of designers and developers. Part of a designer's job is to communicate designs to the developer. The aim of the research is to find out the best way for a designer and developer to work together. Focusing on the designer's role within communication but also considering the needs of the developer. This will help me better understand my role when I start my full-time position.

The study objectives:

- Find out the best workflow for designers and developers to use.
- Predict the future trends for workflows used in industry.
- Find out the best communication styles for when working in teams.

To achieve this the research was split into four sections; Early Web Workflow, Individuals Skillsets and Workflows, Team Communication and Team Workflow. Research into the background and history of the web industry was undertaken, to apply context to the study. The purpose of researching into the skillsets of designers and developers was to uncover how this affects communication and shapes the workflow. An investigation into the way teams communicate helped determine accepted communication methods endorsed by professionals in industry. Finally, an examination of the workflows currently being applied to projects was conducted. This allowed for critical analysis and links to be made between the methodologies and previous research topics.

Due to the nature of the chosen topics most of the secondary research sources are blog posts and articles written by industry professionals. This is appropriate as the study needed the up-to-date opinions, experiences and knowledge of professionals in industry. Some visual sources (diagrams and screenshots) are included to help explain, provide context and backup arguments. Other research includes books and academic journals, relating to the topics where appropriate.

The literature review chapter explores the studies and industry trends already out there. The methodology chapter provides the rational and background to the primary research undertaken. The results chapter reviews the findings of the primary research. In the discussion chapter the results of the literature review and primary research are compared and the trends found are identified and debated. In the conclusion, the study will be brought to an informed close.

For the purpose of this report, designer means; Web Designer, UX Designer, UI Designer, Interaction Designer and Digital Designer.

For the purpose of this report, developer means; Web Developer, Front-End Developer and UI Developer (any member of the development team that directly communicate with the designer).

4.0 LITERATURE REVIEW

4.1 Early Web Workflow

When the internet was invented, the roles of 'designer' and 'developer' did not exist. Stephen Hay, a web designer with over 20 years' experience, (2013) recalls it was one person's job to design and build the front-end of a site. Now there is a whole team of people responsible for the front-end of a website. Gabe Whhab (2016) believes that a successful project needs at least five people working on it. John Brownlee (2015) claims that tech companies, 'designer' to 'developer' ratio is now one to four which has increased considerably from what it used to be, one to thirty. Comparing these ratios shows design has become much more important and relevant in the tech industry. Having a designer and a developer on a project is now a necessity. As well as team dynamics changing the technical possibilities have also changed.

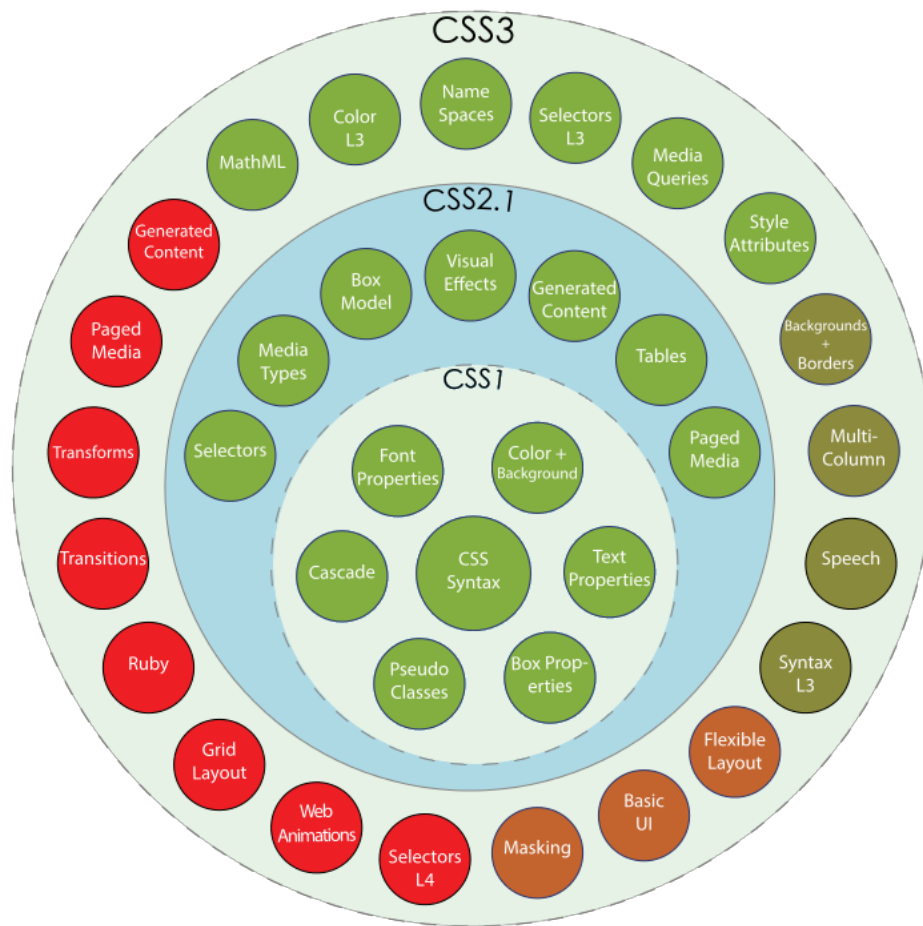


Figure 1 Diagram showing CSS3 modules (Wikipedia, 2017)

When the internet first came about there were limitations to what could be technically achieved. For example, Zach Holman (2014) blogged about how screens had such low resolution that developers would use pixel-fonts so text would not appear blurry on screen. Fig 1 shows the early evolution of CSS. In the early releases of CSS, there were very few properties that could be customized on a website. Limitations like these meant that creating attractive User Interfaces (UI) and User Experiences (UX) were extremely difficult. This could be a reason why businesses were slow to use the internet as a business tool.

Now that websites are used as mission critical business tools the appearance is more important than ever. Geoff Herbert (2014) found that

although e-commerce was launched in the early 90s, retailers did not fully exploit the benefits until the millennium. Lauren Sherman wrote an article (2013) suggesting that fashion labels only started to embrace e-commerce at such a late stage because they felt it would have a negative effect on their brand. Selling products comes down to customer service, if a good UX is not exploited, then you will have a poor impact on sales.

Emarketer.com (2016) estimated that total e-commerce sales will reach four trillion pounds worldwide by 2020. The online sales potential has grown significantly over the last ten years. This means that retailers must create great UXs to be able to compete for business.

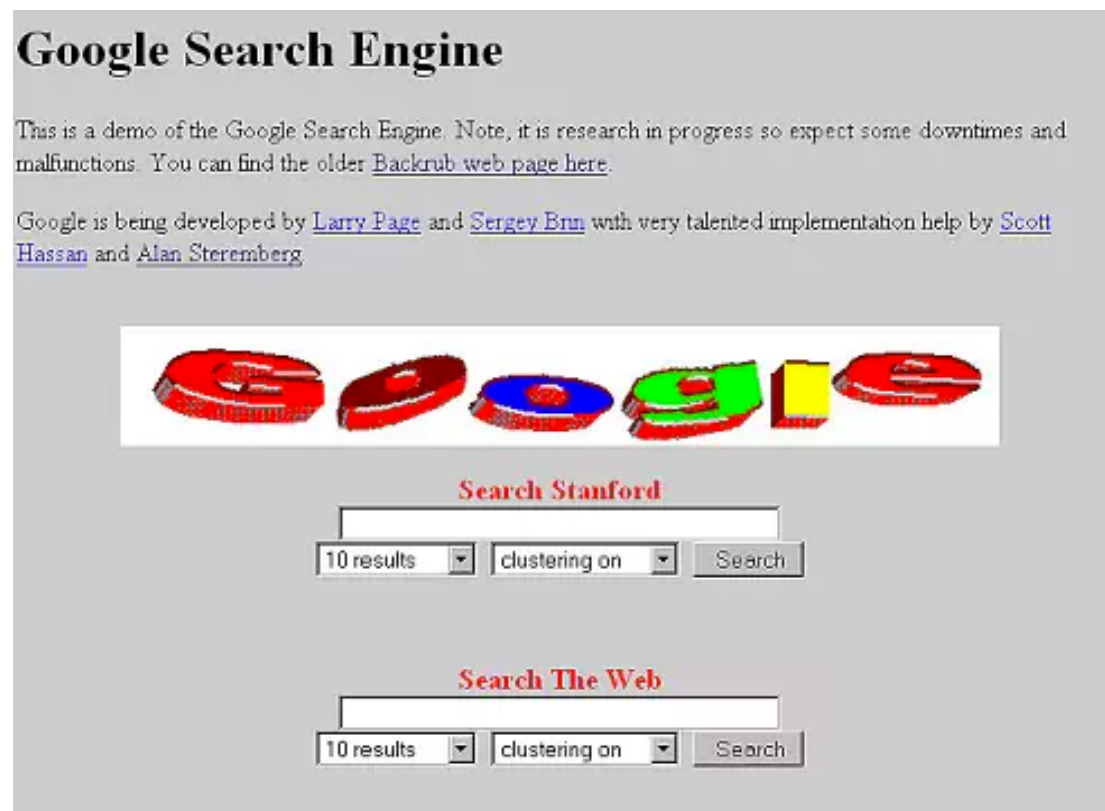


Figure 2 Early UI of Google (Williams, 2015)

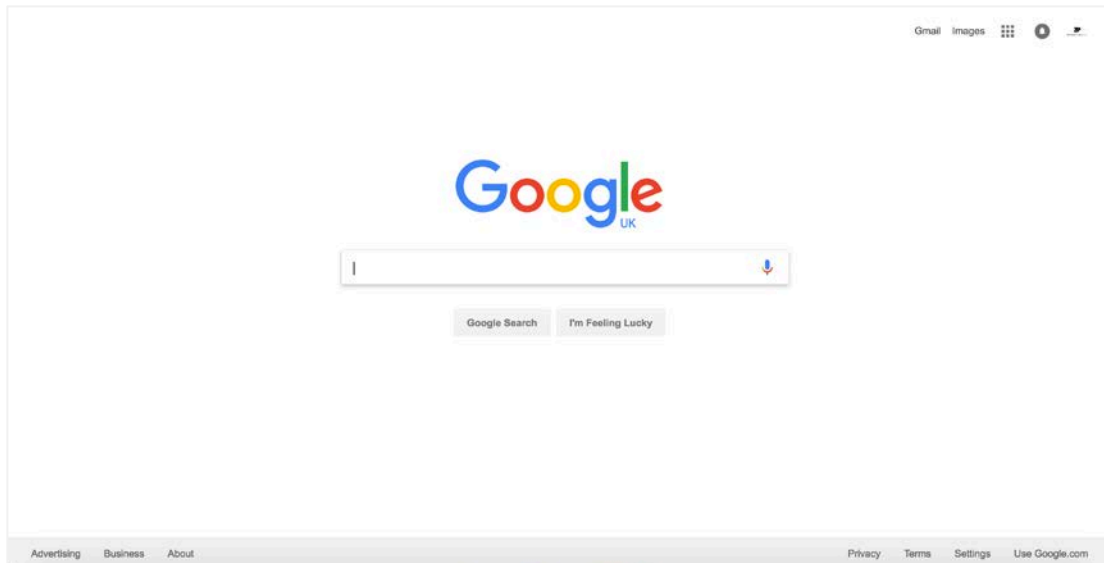


Figure 3 Screenshot of Googles UI (Google, 2017)

Over time graphic design principles have been introduced to the layout of web pages. Lucienne Roberts (2008) wrote an article proving that grids have been used throughout history to make large quantities of content easy to understand. However according to Sandijs Ruluks (2014) using a twelve-column grid, in web design, did not become common practice until 2007. Fig 2 shows Googles first UI. There is no evidence of a grid being used, nothing aligns and there is no well-defined call-to-action. Fig 3 shows Googles UI today. Paul Boag, a respected User Experience Designer, (2017) stated using negative space to highlight a call-to-action was one of the most successful techniques that could be used to draw a user's attention. Google has made use of this technique in their latest UI. When a user lands or visits the page, they can see its purpose and use it with little or no instruction. They have used design skills to create a successful UX.

4.2 Individuals Skillsets and Workflows

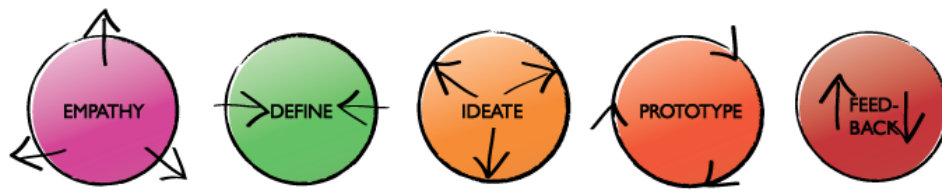


Figure 4 Design thinking graphic (Young, 2016)

Designers create solutions to problems using their specialised set of skills. The National Careers Service (2017) states that a designer needs to have skills in; visual design, UX, Search Engine Optimisation (SEO), HTML/CSS and design software e.g. Photoshop and Illustrator. James Young (2011) defines the steps to problem-solving as; understand the problem, create a solution plan, implement and review. A workflow designers use to solve problems is design thinking. Kaan Turnali (2013) defines design thinking as a process that helps develop innovative ways to solve problems. Fig 4 illustrates the five principles of design thinking; empathy, define, ideate, prototype and feedback. Designers tackle each step with the skills and strategies in their toolkit. However, there is some debate within industry about whether all these steps are needed in a workflow.

Understanding the user is key to creating a successful product. Carrie Cousins (2015) wrote an article identifying the problems that a designer needs to solve in a project. One of the problems she identified was the users' problem. This would be tackled in the empathy stage in design thinking. Rikkje Friis Dam and Teo Yu Siang (2017) think that the empathy step is important because it allows the designer to set aside their own assumptions to gain insight into the users. However, Cennydd Bowles (2013) believes that researching the user takes up too much time and

designers should use their experience and logic instead. This approach is called Activity-Focused Design (AFD). Francis Rowland (2013) defines AFD as a methodology that focuses on the activities being carried out.

Vigneshwar (2015) wrote a blog post comparing user-focused and activity-focused design. He concluded that user research takes time but often cuts costs in user support and rework down the line, therefore is ultimately worthwhile. Like designers, developers have their own individual workflow.

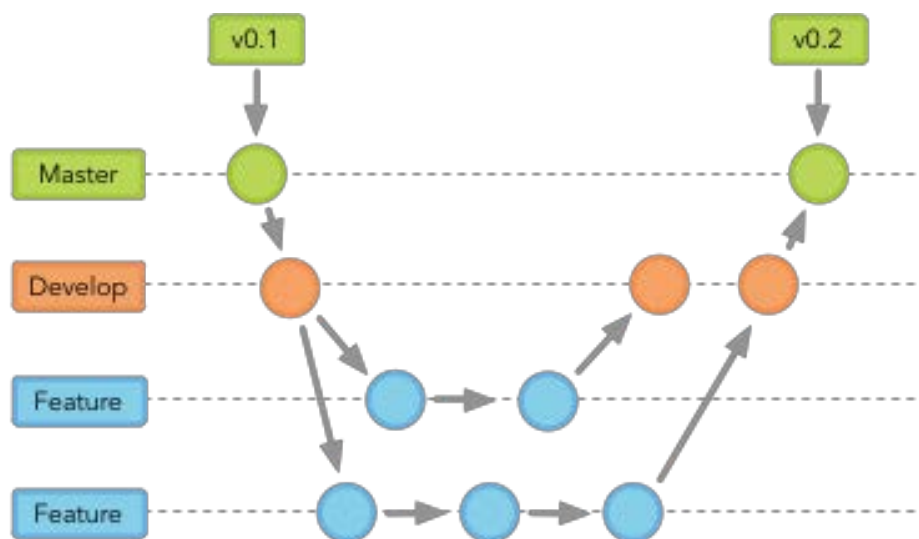


Figure 5 GitFlow diagram (Kalyan, 2014)

The developers job is to take the design solution and turn it into a working product. Carey Wodehouse (2017) says developers should be able to; understand concepts, have skills in HTML, CSS and JavaScript, website maintains, responsive design, have a knowledge of backend, software workflow management, SEO and testing. One workflow method developers use is GitFlow. Fig 5 illustrates this workflow. This methodology allows multiple developers to work on a project at once. Understanding designs is a necessity for a developer for obvious reasons. However, the reasons for designers understanding code is a lot less obvious.

A place where the skillsets of a designer and developer can overlap is coding. Marc Schenker (2015) said that designers that know code have an edge over the designer that cannot. Connolly (2016) talks about how style guides can easily be turned into a CSS. This is a way that designers can use their CSS skills to translate their designs to the developer. Jo Franchetti (2014) wrote an article where he stated he likes it when the designer writes the CSS for text because they can define the CSS attributes accurately. This means developers do not have to guess how the designer has edited the fonts from design mock-ups' which saves time. Megan Klutzz (2017) believes that designers knowing code helps them make more informed design decisions and improves communication with the developer. Communication is key to a smooth workflow in a team.

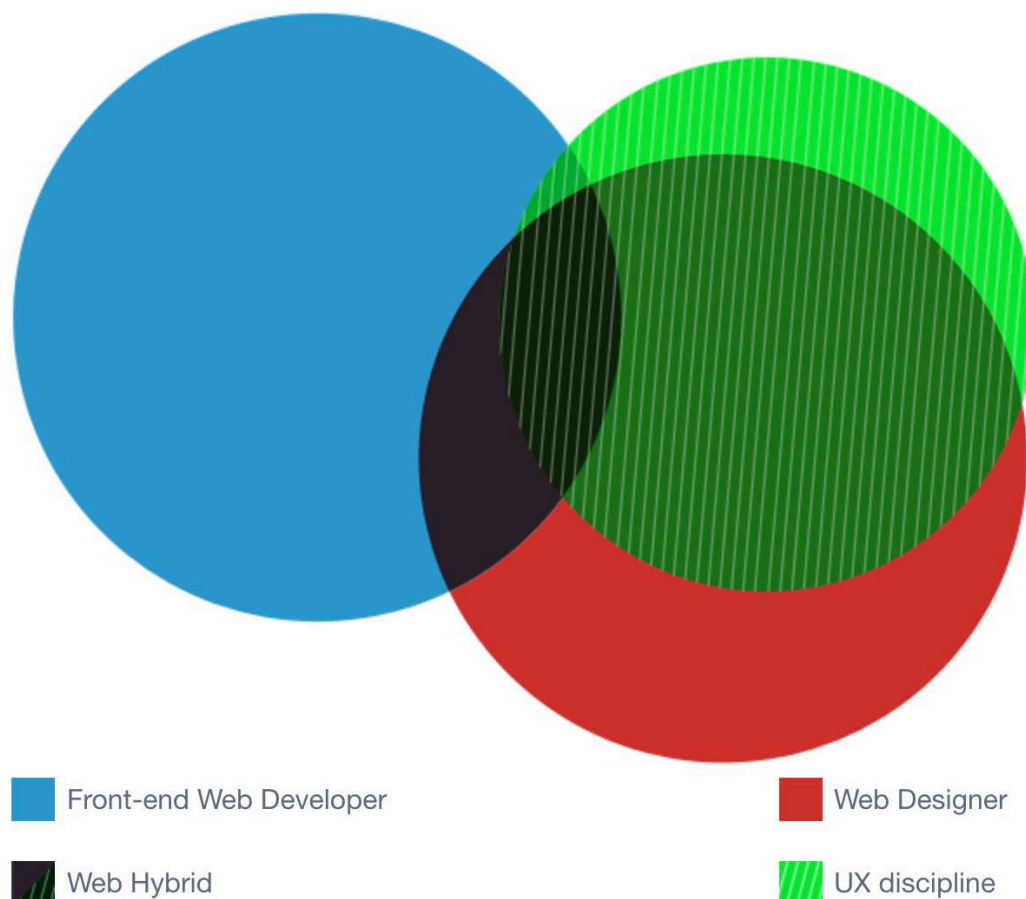


Figure 6 Venn diagram depicting the merging of Front-end Developers, Web Designer, UX into a Web Hybrid role (Denyer 2012)

Due to the nature of the industry the skillsets of specialists tend to overlap. Marc Schenker (2015) stated that the skillset of a graphic designer and web design can overlap. This indicates a trend that overlapping skillsets is the industry norm. Fig 6 shows how traditional roles within the web design industry are starting to overlap and are beginning to create new 'web hybrid' roles of people who have skills in all aspects of the web. Ivana McConnell (2015) also observed that jobs are becoming more specialised but the skillsets of professionals are broadening. Austin Bales, lead designer for Do.com, did a talk for Heroku in 2013. He identified that professionals in industry are starting to cross discipline and speculated this would create a new workflow process that caters to learning. Having

common skills and shared learning should give web design teams a head start at communication.

4.3 Team Communication

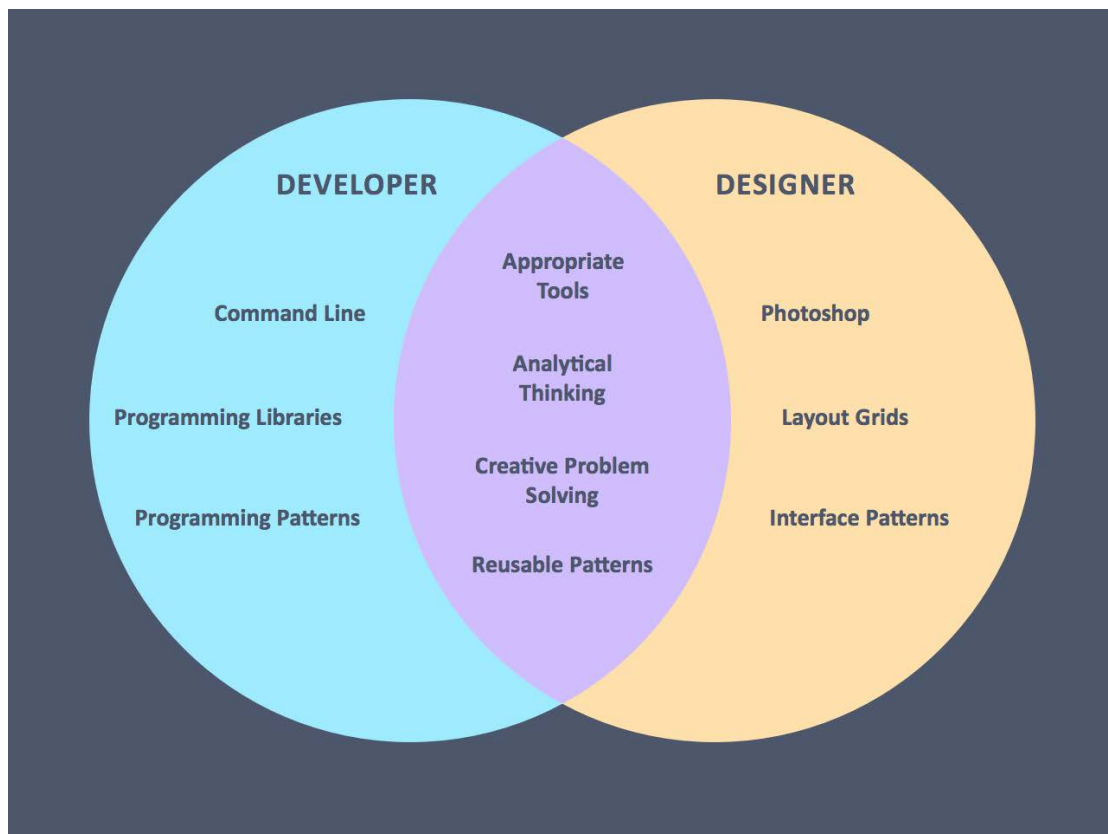


Figure 7 Venn diagram showing designers and developer overlapping skills (Brito, 2013)

Having common knowledge allows for better communication between designer and developer. Skillsyouneed.com (2017) claim having things in common makes communication easier and more effective. In fig 7 the skills that are shown to be shared, 'analytical thinking' and 'creative problem solving', are generally used in the collaboration steps within a workflow. Having analytical thinking as a common skill will make the review and feedback process much easier. Joahim Stempfle and Petra Badke-Schaub (2002) carried out a study comparing different design teams' methods. They found that teams with people that have different levels in skills, tend to have more discussion and create better outcomes than, teams of people who have similar levels in skills. Marketing agency iPullRank (2016) published a blog post stating that when designers and developers learn

each other's specialist terms, it improves team communication. There needs to be a balance of similarities to make communication easier and differences to create discussion.

Designers need to provide more than just design mock-ups when handing a project over to the developers. Crew, a web design freelancer website, (2017) teaches designers to send well labelled Photoshop files, asset files and a font list to the developer. However, as designs gets more complicated it is important to explain them fully. Kluttz (2017) recommends creating interaction animations to visualise designs, that if explained verbally could be misinterpreted. Matt Reamer (2015) also believes creating animation prototypes is useful because, it saves time when explaining the animations to the developer. Tom Brinton (2015) recommends sharing user stories with the developer so they have a deeper understanding of why elements have been designed the way they have. When a developer sees the amount of work that has gone into creating the designs, they will be able to better rationalize the workload they are given.

Designers need to be considerate of the workload they are giving the developers to maintain a good working relationship. CanvasFlip (2016) suggest designers can overlook the amount of time and effort a design solution may require of the developer when choosing the final design. Daniel Schwarz (2017) recommends that designers keep styles consistent, choose convenient to install fonts and, optimise images properly as ways a designer can help make the developers job easier. Glomb, Duffy, Bono and Yang (2011) did a review on the practise of mindfulness in the work place. They found that individuals that practice mindfulness have less conflict with negative implications. Designers and developers should use

mindfulness techniques to maintain positive working relationships. Communicating regularly would also help create a strong liaison.

Communication between designer and developer needs to happen from start to finish of a project. Jo Franchetti (2014) believes that starting communication early is key to a great designer-developer relationship. Tatyana Khamdamova (2016) suggests a good way of doing this is making sure all members of the design and development teams attend all scheduled meetings. This stops confusion later in a project. Paul Boag (2014) implied that if developers are not included in the design process then it could lead to unbuildable designs. If this scenario were to happen then there is almost certainly a communication problem between the two teams. Thomas Peham (2015) also thinks that constant feedback is imperative when creating a project. Communication must be frequent to make sure both teams are happy with the progress. This also ensures no time is wasted and keeps the workflow narrative on track.

4.4 Team Workflow



Figure 8 Microsoft typical design workflow (Microsoft, 2011)

Both big and small companies follow the same workflow narrative, yet the steps can differ depending on the project circumstances. Ugne Kontare (2014) wrote a blog for a Microsoft partner. In the post, she explains how in a big company a structured and proven workflow is applied to projects. She also stated that in small companies, the workflow is similar however, less time is spent on tasks and some are even merged. Fig 10 shows the workflow Microsoft follows to complete a project. There are nineteen carefully defined steps in the workflow. Fig 11 shows the workflow of MODassic, a small web design agency. Both workflows follow the same logic however MODassic has half the steps that Microsoft has. This

supports Ugne Kontare's theory that smaller projects tend to combine tasks within the workflow. Once the narrative has been mapped out, a workflow methodology must be chosen to optimize productivity.

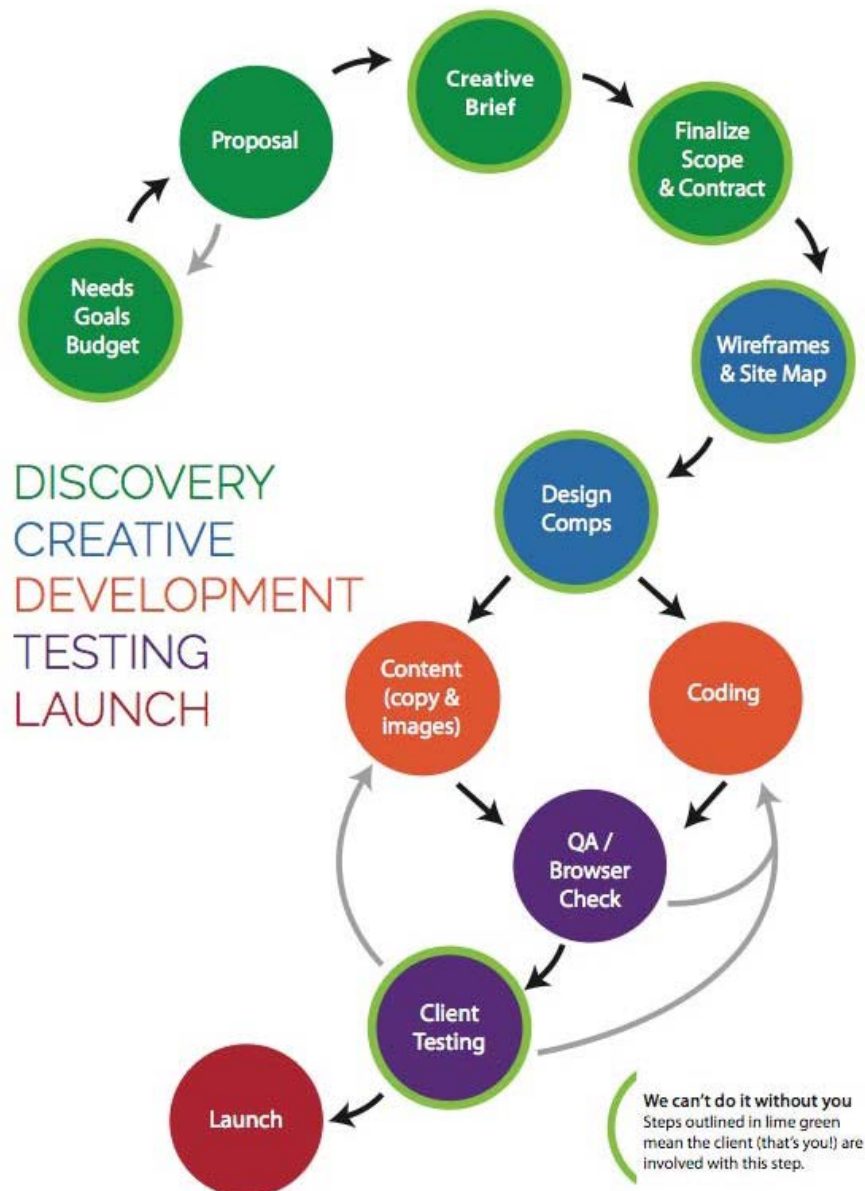


Figure 9 MODassic web design workflow (MODassic, 2016)

There are many different workflow methodologies used to manage web development projects such as; Agile and Waterfall. However, these methodologies do not define how the design and development team work together. Brian Genisio (2011) wrote an article for UX Magazine, that broke down the ways in which design and development teams work together

into four typical workflows; Jack-of-All-Trades, Over-the-Wall, Round-Trip and Fully Integrated.

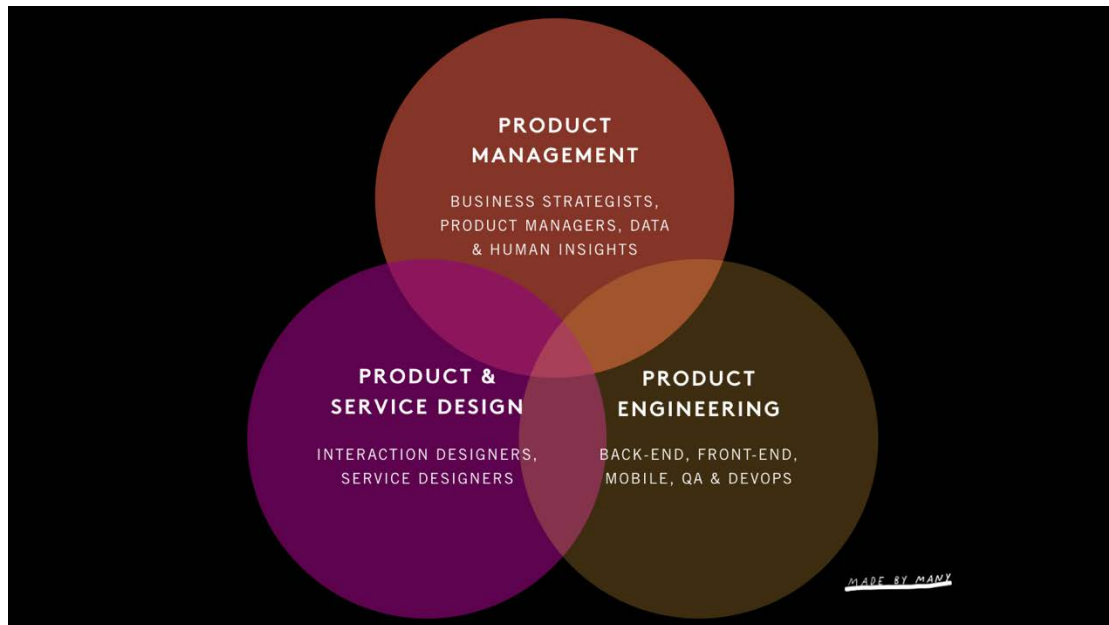


Figure 10 Made by many ingredients for creating a product (Malbon, 2016)

"The Jack-of-all-Trades is an individual who wears many hats. She designs the look-and-feel, produces assets, architects for usability, and implements the final product. When there is only one person involved, the workflow is extremely efficient and is supported by most tools." (Genisio, 2011)

The Jack-of-all-Trades workflow is great workflow for freelancers to utilise however, for complex projects is not suitable. Fig 10 illustrates the three key skillsets required to create a digital product; project management, product and service design, and product engineering. A person would be required to have knowledge and skills in all three of these areas to be able to use this workflow. Strauss and Hogan (2001, p.77) believe that a one-person team is perfect for a simple website project as it is the most efficient method. Arfa Mirza (2010) also favours this workflow for

freelancers as it is "highly sellable" to clients. However, Lauren Bonk (2010) believes that this workflow substitutes quality for quantity. She suggests outsourcing weakness to other specialists. This would mean a team workflow approach would have to be utilised.

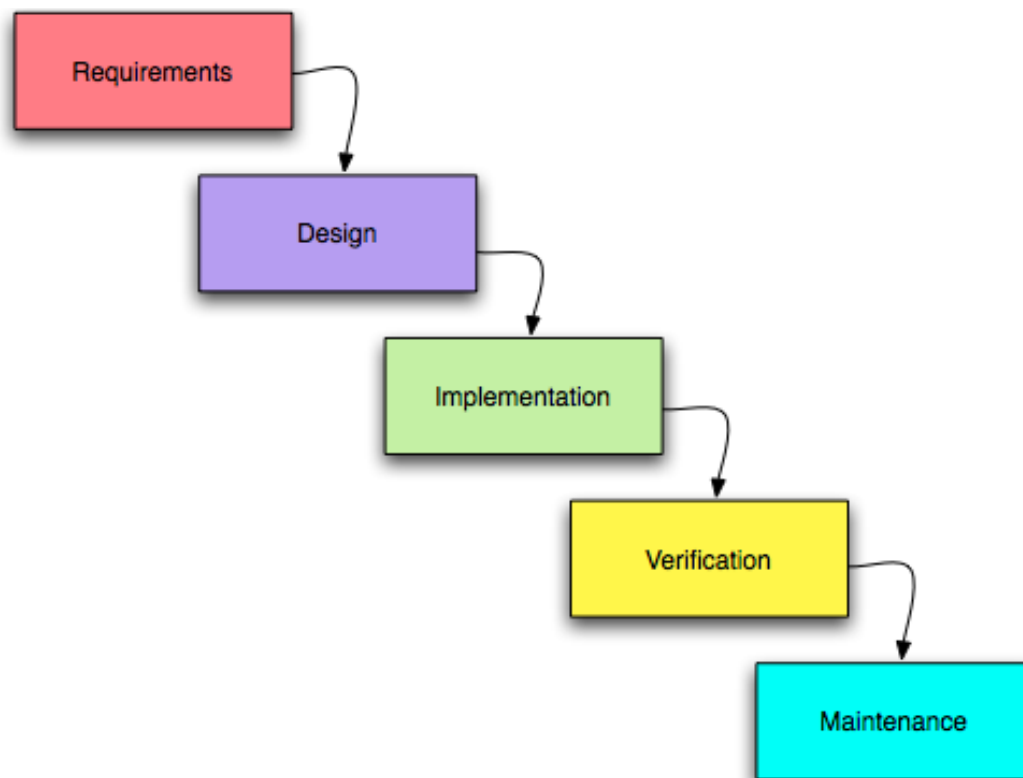


Figure 11 Waterfall methodology model (Chery and Fabien, 2010)

"Most people are familiar with the Over-the-Wall workflow. The designers and usability experts come up with a vision and pass it over the wall for the developers to implement." (Genisio, 2011)

An Over-the-Wall, or Waterfall, workflow does not lend itself well to creating products in the modern day. Fig 11 illustrates a Waterfall workflow. Each step must be finished before moving on to the next one. There is no repetition of steps and once the product is finished it is released. Phillip Laplante and Colin Neill (2004) believe this method of

workflow is outdated as it does not allow for user feedback to help shape the product. In this workflow, the design and development teams are split up. Tim Briant (2015) disfavours a segregated workflow like this because it creates competition between the design and development teams. However, Rachel Feinzeig (2013) found that when workers are seated in departments it creates focus and efficiency. For products that are straightforward this workflow would be preferable. Hewlett Packard (2017) did a survey on the project management workflows used within industry. It found that 2% of the people surveyed used a pure Waterfall workflow and 7% leaned towards Waterfall. These numbers are very low and suggests that this workflow is becoming obsolete. Projects are becoming more complex therefore need a more dynamic workflow system.

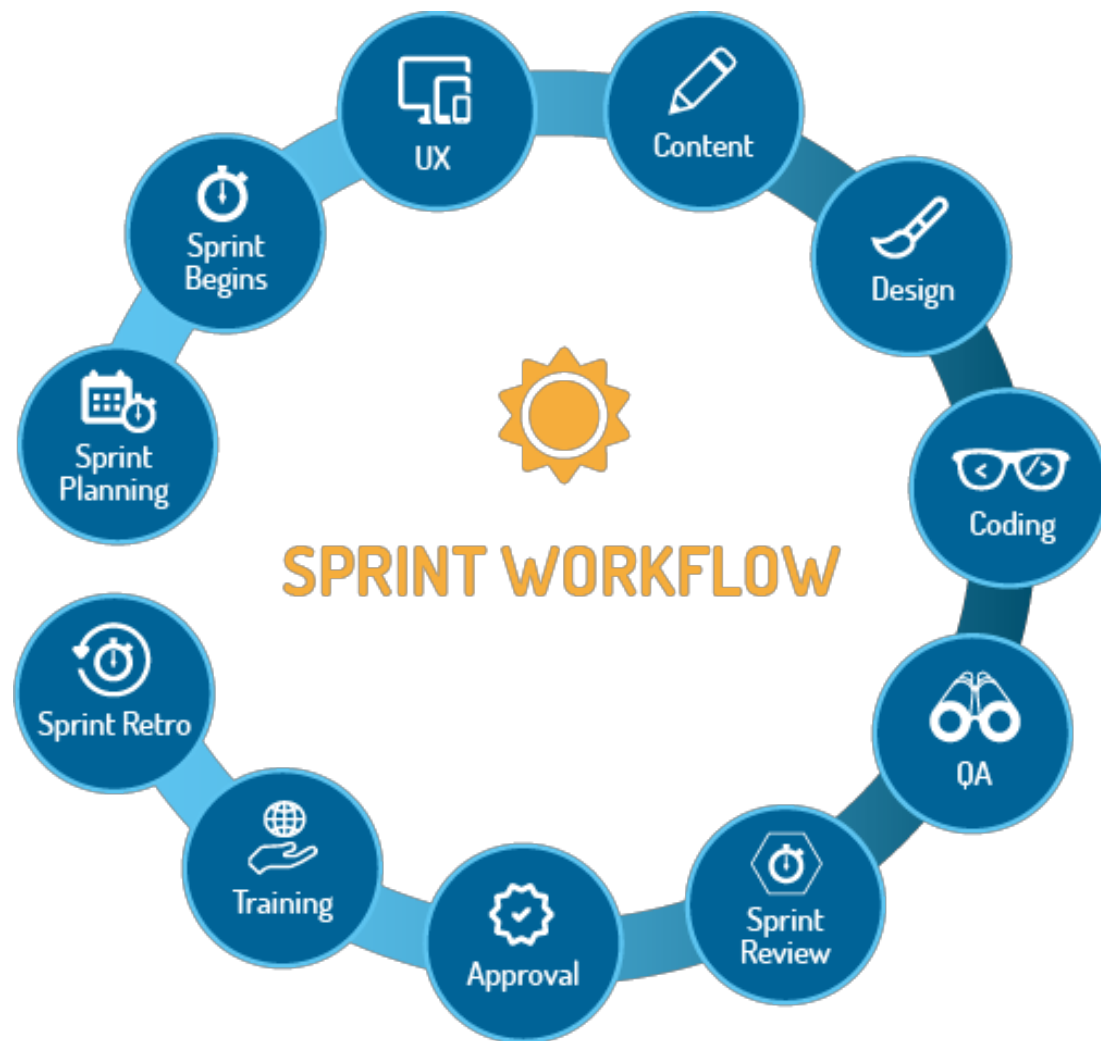


Figure 12 Agile sprint workflow diagram (Little, 2017)

"The Round-Trip workflow builds upon the One-the-Wall workflow. The developer can add behaviours to the product and then send the product back to the designers for further updates. The designers and UX experts then make changes and send the product back to the developer to continue affecting the behaviour of the application. This workflow continues back and forth in an iterative way and allows the product to grow more organically." (Genisio, 2011)

An Agile or Round-Trip workflow is the most popular within industry. Fig 12 depicts an Agile workflow process. The process is iterative so every time

the process is completed the product gains new features or is improved. Tatyana Sussex (2015) supports this method of workflow for projects that need to evolve over time. Helmut Juskewycz (2016) credits this workflow as it reduces despatch times so the product can start to make revenue sooner. Kelly Waters (2007) believes that this workflow requires more dedication than any other. However, she also stated the process is much more rewarding as the team is empowered. Adam Fridman (2016) has reservations about using this workflow because the outcome of project becomes unpredictable due to the reliance on user feedback. Hewlett Packard (2017) found that 16% of the professionals surveyed used a pure Agile workflow and 51% leaned towards Agile. This study proves that Agile is the most used workflow methodology currently being used in industry. This workflow introduced the idea of collaboration and iteration which is at the heart of the new-fangled workflows being developed for the future.

"The Fully Integrated workflow allows every person to modify the product simultaneously. The integration tool works directly out of the software code base but hides the code from the designers and UX experts. Everybody who works on the product can modify it at any time. It leaves the experts to do what they do best and the product evolves naturally." (Genisio, 2011)

Trends suggest that a 'Fully Integrated' style workflow will be the standard for the future. Communication, collaboration and innovation are key ingredients for creating a successful digital product in the present day. Rachel Feinzeig (2013) found a good way of encouraging innovation is to integrate the seating arrangements at work. Megan Kluttz (2017) believes that a collaborative workflow cultivates the best work and results. Jo Franchetti (2014) recommends that frequent communication between

designers and developer should last until the product is built. An Integrated workflow embodies all these things however the technology needed to make this workflow a reality is not quite refined yet. Carson Miller (2016) believes a convergence workflow is the future. He predicts that this workflow will have three major effects on the industry; smaller teams, iteration will become common practice and business capital will improve. People in industry are already using this style of workflow and it can only be expected to increase.

4.5 Summary

The literature review has identified the evolution of the web, analysed the skillsets needed to create a product, examined the ways teams can better communicate, and provided examples for the mainstream workflows used in industry. This research has provided the data needed to conduct further investigation into workflows, and how the implementation of this structure influences a real company's environment.

5.0 METHODOLOGY

For the primary research, I wanted to find out about a real company's workflow. This would allow comparisons to be made in the discussion between the primary research findings, and the workflow theories and examples found in the literature review. As I am about to start a job at CDG I decided to create a questionnaire for their employees asking them about the workflow strategies they use. CDG is a growing design agency that create digital products for clients such as the Cabinet Office, Specsavers, Wiggle, DVLA, Post Office and others. They have been in business for three years and are rapidly expanding. The company has three designers and five front-end developers.

A questionnaire was decided on because it would allow all members of the CDG team to take part. Collecting information from all team members was important, because it would give a more accurate and realistic insight into the workflow. Conducting interviews was another option. I decided not to conduct interviews because there was a risk of skewed results based on opinions rather than facts. A quantitative approach was taken to the questionnaire. This method was chosen because the results would be factual rather than opinions, and therefore it would be easier to determine results. Closed ended questions were used to achieve this. All participants in the questionnaire will remain anonymous.

I decided to have only CDG take part in the questionnaire because I have a relationship with the company, so there was a greater chance that the whole team would participate. If I had sent the questionnaire to a company I did not have a connection to, I would not be able to determine whether the whole team had taken part or not. If only a percentage of a

team was to take part the results would be inaccurate and no reliable conclusion could be drawn from them.

I sent an email to the Managing Director of CDG to ensure they felt comfortable taking part in the questionnaire. If CDG decided they did not want to take part, a more general questionnaire would have been created and sent out to a wider audience. After receiving confirmation, the questionnaire was sent out to the team. The questionnaire was sent on Wednesday the eighth of March in the evening, so it would be in everyone's inbox when they arrived at work the next day.

The aims and topics of this study were used to split the questionnaire into sections. The four sections were; Introduction, Skillsets, Communication and Workflows. This helped provide the participant with a greater understanding of what each question is asking them.

The Introduction section will explain the purpose of the questionnaire and make sure the participant is part of the right target audience.

Question	Relevance
Where do you work?	This will make sure all the participants work for CDG.
What is your job title?	This will determine the participant's role within the company. It will also make sure the participant has a job that is relevant to the study.
Are you a designer or developer? Designer / Developer / Both	This will allow statistics to be split into the design team answers and the development team answers. I

	will then be able to review the answers of the whole company and then compare the designers' and developers' answers against each other.
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The Skillset section will determine what skills designers and developers have that are specialized, and what skills are shared.

Question	Relevance
Could you design AND build a website by yourself? Yes / No	This will allow me to see if each member of the team has strong enough overlapping skills to be able to create product by themselves.
How would you rate your skills in each of these areas? Site Mapping / User Journey Mapping / UX Design / Sketching / Wireframing / Style Guides / Design Mock-ups / Prototyping / UI Design / Interaction Design / Critical Analysis / Wordpress / HTML / CSS / PHP / Java / Testing None / Basic / Comfortable / Confident / Expert	This will allow me to find out the skills that are specific to designer or developer. It will also allow me to see what skills are shared by the designer and developers. I will also be able to determine the overall skillset of the team.

The Communication section will show how the CDG team communicates with each other. It will indicate how formal the work environment is and provide an insight into the company culture.

Question	Relevance
When working on a project how is the team seated? Everyone sits together / Design team and development team are segregated / Everyone sits apart	This will show how the team is segregated and which team members are in constant communication.
How are design visuals presented to developers? Mock-ups / Prototypes / Animations / Responsive HTML Template	This will show how in depth the designers go to translate the design to the developers.
Do developers do code walkthroughs with designers? Yes / No / Other	This will tell if designers are involved in the coding process.
What method of communication do you use the MOST to communicate with your team? Verbally / Messenger (skype, slack etc) / Email / Formal Meetings / Other	This will show how formal communication is between team members.
How often does the whole team meet to discuss progress? Once a day / Twice a week / Once a week / Biweekly / Never / Other	This in conjunction with the question before it, will allow me to determine how formal or informal communication between the whole team is.

The workflow section will provide information regarding what project workflows the company practices. It will also allow direct comparisons between the workflows I have researched and CDG's chosen workflows. This section will include short summaries on each workflow.

Workflow Summaries:

- Jack of All Trades - you both design and build the site.
- Over the Wall - design team creates site visuals then hands them over to the development team to implement.
- Round Trip - designers create visuals then progress is sent to development team to review and begin build. Development teams progress is then sent back to design team for review and updates... goes on like this until completion.
- Fully Integrated - every member of the team is involved in every stage of project.

Question	Relevance
Which of these workflows do you use the MOST? Jack of All Trades / Over the Wall / Round Trip / Fully Integrated	This will allow me to see to which workflows are used. I will then be able to compare previous answers with the research from my literature review and see if they match.
What development methodology do you use? Waterfall / Agile / Other	This will allow me to see what project management style CDG use.

6.0 RESULTS

The questionnaire was left open for two weeks. It received eight responses, which amounted to the whole of the CDG design and front-end development team. Individual responses can be seen in the appendix.

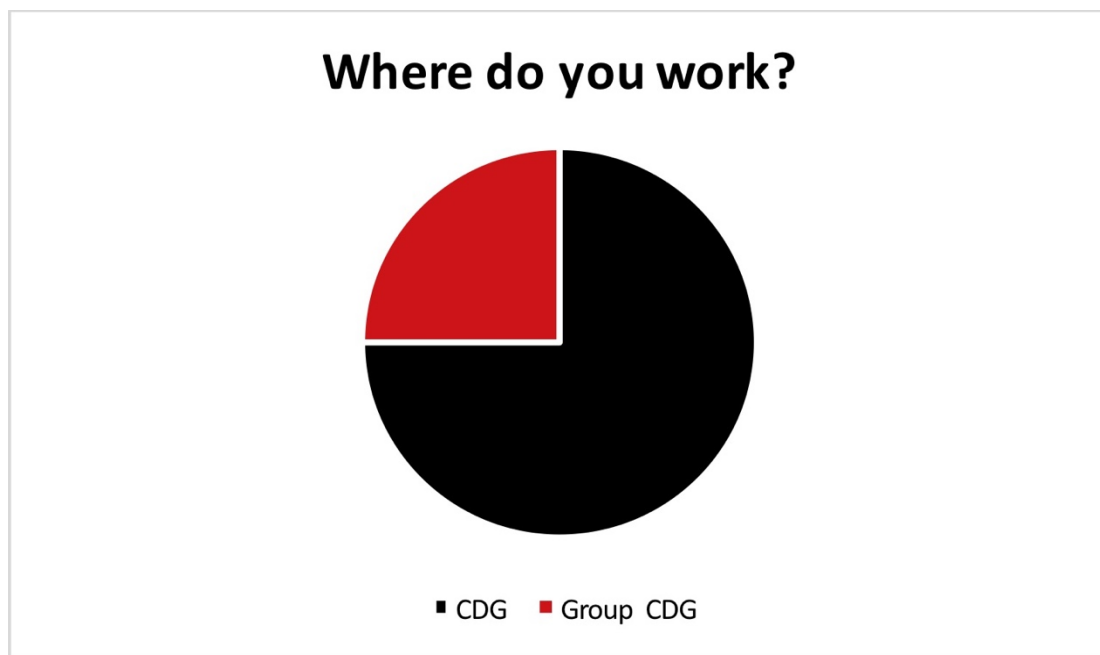


Figure 13 Responses to 'where do you work?' question 1

Fig 13 shows that all participants work for CDG. This means all responses can be included in the final results.

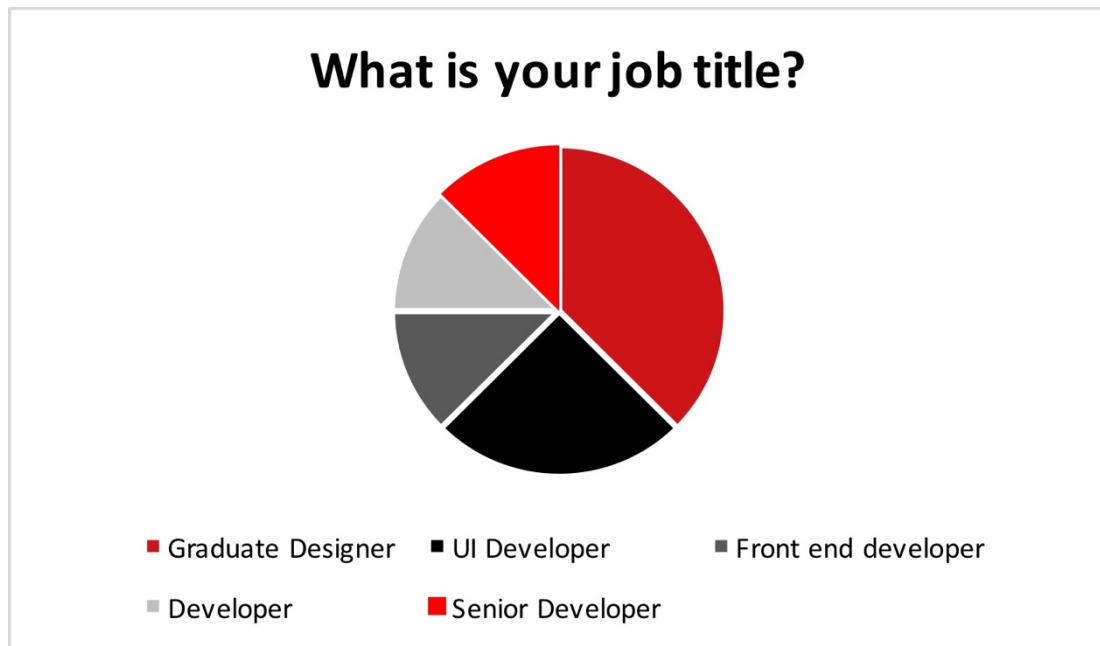


Figure 14 Responses to 'what is your job title?' question 2

Fig 14 shows all participants have job roles within the company that are relevant to the study. This means that all participants qualify and can be included in the final results.

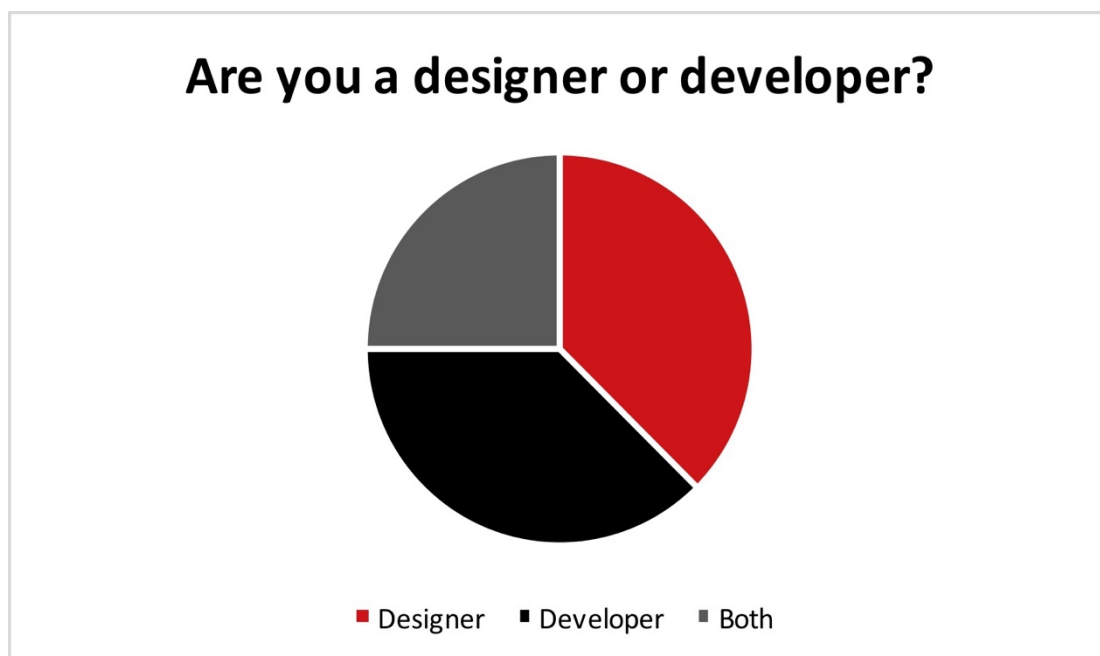


Figure 15 Responses to 'are you a designer or developer?' question 3

Fig 15 expressions an even split between employees that define themselves as a designer or developer. The rest identify as both. There is an even split between creative and technical thinkers within the company.

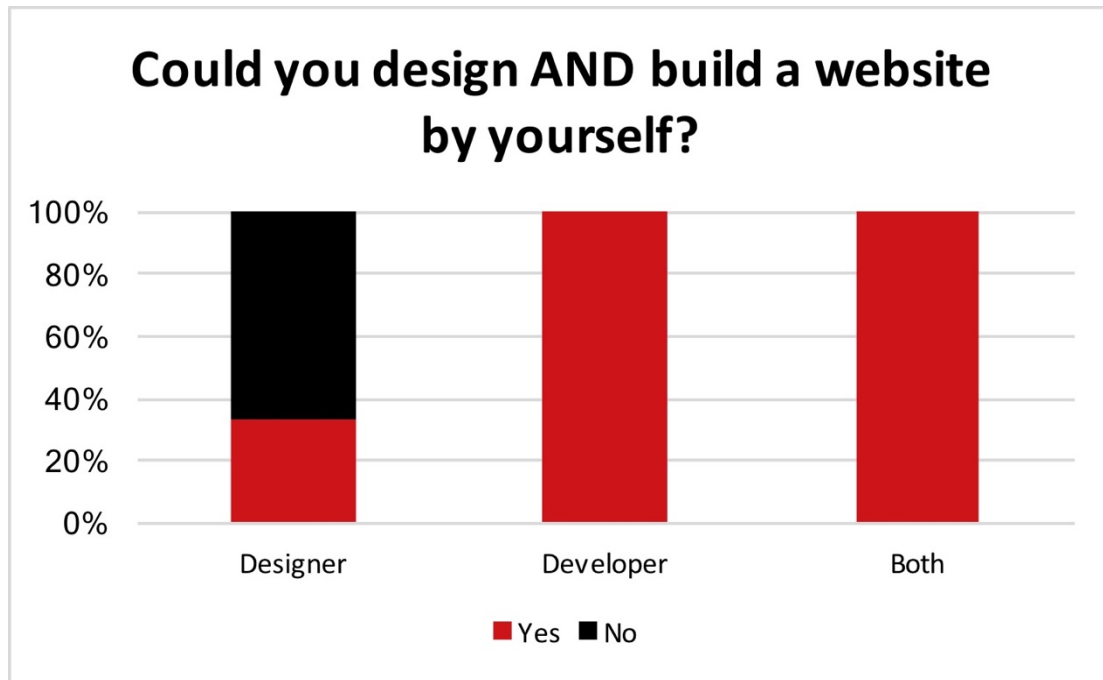


Figure 16 Responses to 'could you design AND build a website by yourself?' question 4

Fig 16 shows that all developers feel they have strong enough design skills to be able to design and build a website. However, most designers do not feel they have strong enough technical skills to build a website.

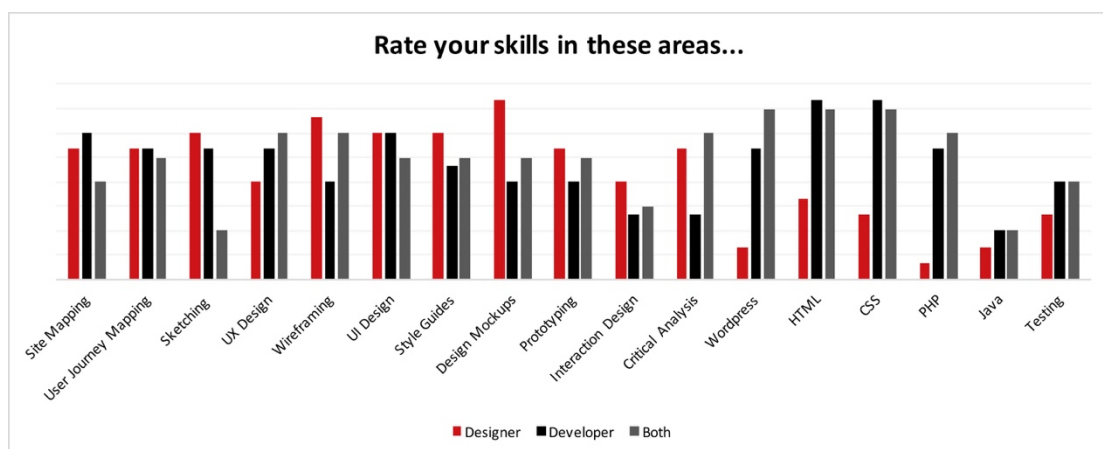


Figure 17 Responses to 'rate your skills in these areas...' question 5

The mean of all the designers', developers' and those with both specialties, answers were calculated, then put into a bar chart to create fig 17. This allowed patterns and trends to be easily detected. One trend that can be spotted is developers have an overall high level of knowledge when it comes to all aspects of the process. While designers have high levels of knowledge in the research and design skills but a very low level of knowledge in the technical skills.

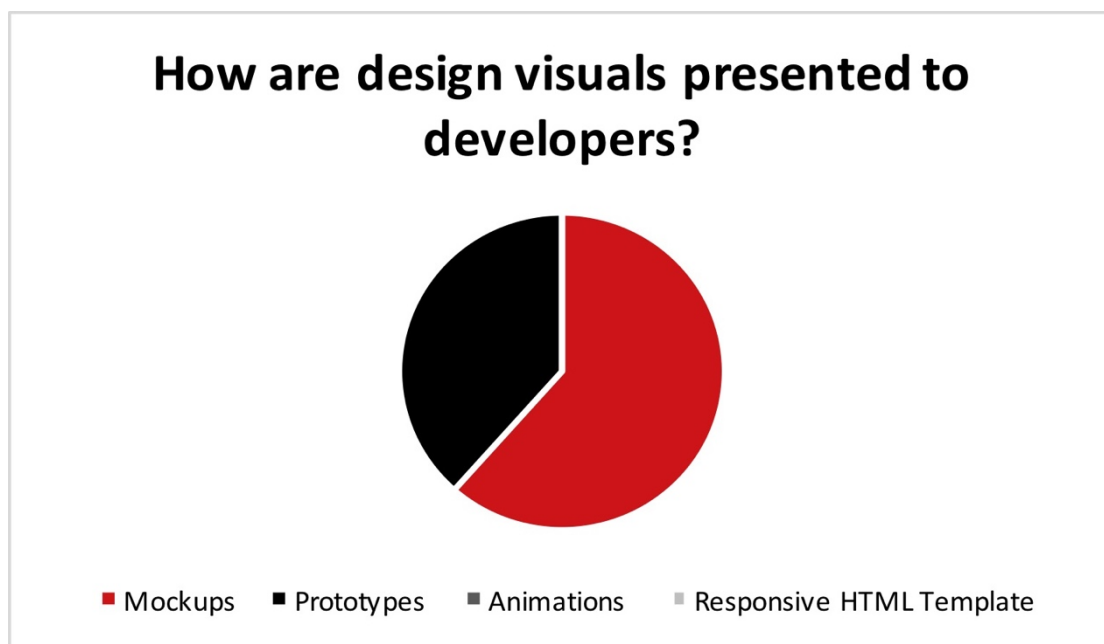


Figure 18 Responses to 'how are design visuals presented to developers?' question 6

Fig 18 suggests design visuals are presented to developers as mock-ups and prototypes.

Do developers do code walk-throughs with the designers?

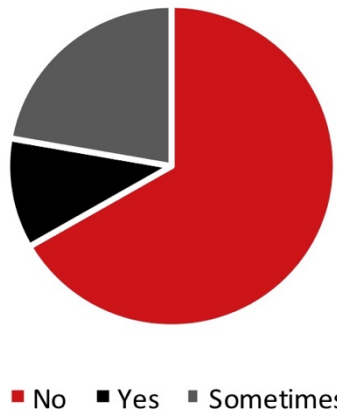


Figure 19 Responses to "do developers do code walk-throughs with the designers?" question 7

Fig 19 suggests that the design team is not very involved in the development process of the workflow.

When working on a project how is the team seated?



Figure 20 Responses to 'when working on a project how is the team seated?' question 8

Fig 20 provides certain proof that the design and development team are segregated in seating arrangements. This would indicate an uncolaborative workflow sytem is in place such as; Over-the-Wall or Waterfall.

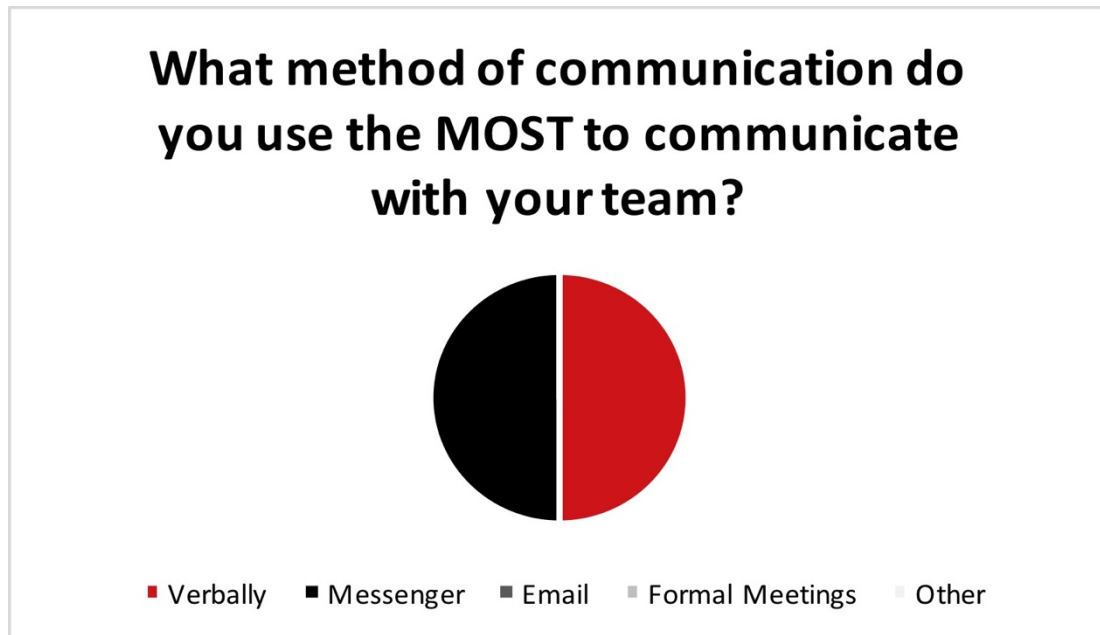


Figure 21 Responses to "what method of communication do you use the MOST to communicate with your team' question 9

Fig 21 shows that the main bulk of communication between team members is informal. This indicates a more relaxed working environment. It also suggests more frequent communication between the team suggesting a very collaborative environment.

How often does the whole team meet to discuss progress?

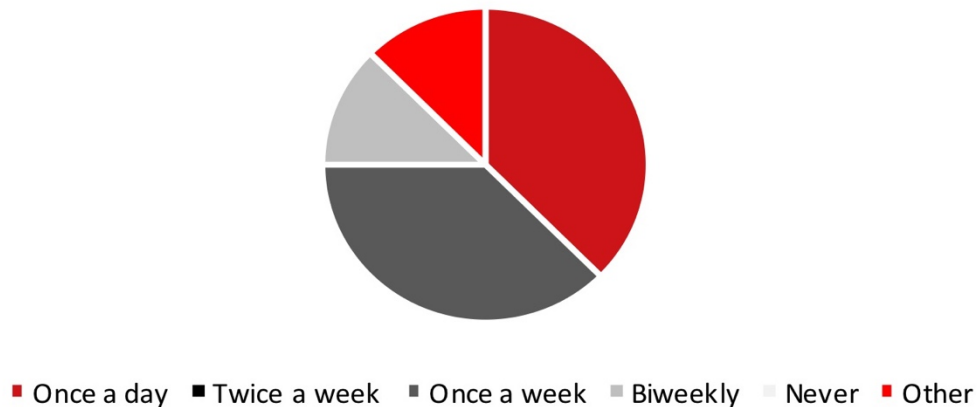


Figure 22 Responses to 'how often does the whole team meet to discuss progress?' question 10

Fig 22 reveals scattered and varied responses for question ten. However, the answers suggest that the whole team meets at least once a week to discuss the progress of a project. This again reveals a very collaborative process is being utilised.

Which of these workflows do you use the MOST?

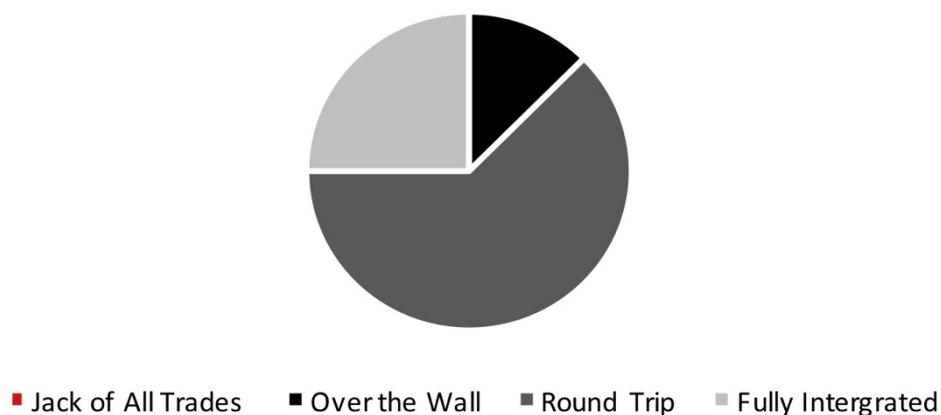


Figure 23 Responses to 'which of these workflows do you use the MOST?' question 11

Fig 23 suggests a Round-Trip workflow is the most practiced in the company. This workflow indicates that an Agile project management methodology is used. Two participants selected Fully Integrated which may be an indication of an evolving workflow.

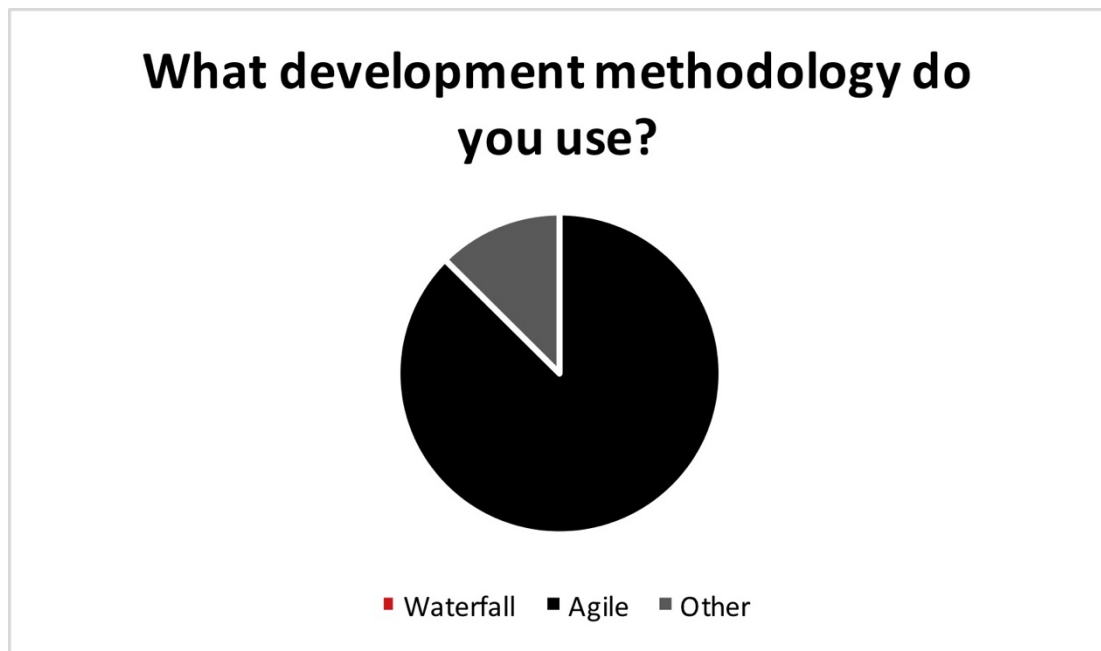


Figure 24 Responses to 'what development methodology do you use?' question 12

Fig 24 confirms that CDG use an Agile workflow methodology.

7.0 DISCUSSION

The purpose of this study is to find out the best ways that a designer and developer can work together. Focusing in on the skillsets, communication and workflows, needed and used in the industry. The findings would then provide me with the knowledge needed to communicate effectively in a professional team environment.

The results of the questionnaire revealed that CDG practice an Agile/Round-trip workflow. The development team possess both creative and technical skills while the design team have little development knowledge. The design team sits separately from the development team. The team's main methods of communication are verbal and instant messenger, which implies it is frequent and informal.

The study found that an Agile/Round trip workflow is the most common in industry. The results of the questionnaire found that CDG implement an Agile workflow. Hewlett Packard Enterprise (2017) conducted interviews that revealed the most common workflow used in industry to be some sort of Agile aligned workflow. However, in some ways CDGs workflow does differ from the research conducted into Agile and Round-Trip workflows. The design and development teams are segregated in the seating arrangement. This contradicted the research into workflows conducted as, Rachel Feinzeig (2013) Tim Briant (2015) suggest segregated teams is an indication of a Waterfall/Over-the-Wall workflow. There are several factors that could explain this; office space, employees that work from home etc.

Shared skills were found to help improve communication in a team. In the questionnaire, it was revealed that the development team have a high level of creative as well as technical skills. This indicates that these members of

the team can communicate well with other developers and designers. The research into communication conducted in the literature review, also supports this as a way of communicating better. However, this would mean that because the design team have little knowledge about the technical side of the process they are not as good at communicating. This is further supported by the answers to question seven, in the questionnaire, that asked the team if the designers are taken through the code. Most participants answered no, which indicates that designers are not involved in the development process. This flow goes against the findings in the literature review like Jo Franchetti's (2014) advice to continue communication through the build. An explanation for this could be the fact that all the designers are 'Graduate Designers' which reveals that they are young and have less industry experience than the development team working at CDG.

The research found there is strong need for collaboration between designer and developer. This is the basis for predicting a Fully Integrated workflow will be the future. The questionnaire revealed that a Fully Integrated workflow style is occasionally used at CDG. This could be interpreted as evolution from an Agile/Round-Trip workflow to a more converged workflow. The industry's typical workflow has quickly evolved from a solitary process to a team effort. It is not unreasonable this process could in the future become even more collaborative. Austin Bales (2013) also believes new workflows will foster collaboration and learning. The software tools to maintain a Fully Integrated workflow such as; Trello, Evernote and Jira are relatively new phenomenon's, it is reasonable to assume that this type of workflow is only just starting to move into the mainstream.

This study is limited as only one company was questioned. Although CDG's workflow matched up with the secondary research, if more companies were surveyed then the results could be better generalised. A generalisation that can be made by the results is an Agile workflow is the most common practiced in the industry today.

The findings of this study are important because workflow within the tech industry is becoming ever more important. Elena Haidukova (2016) believes that having a smart workflow removes the inefficiencies from projects by defining each process the team needs to focus on. This study can be applied to businesses as well as individuals who wish to update their workflow, or learn how to better communicate within a team environment.

Further research into specific workplace project management techniques like, Glomb, Duffy, Bono and Yang's (2011) mindfulness theory could be recommended. This would be interesting as it would allow links to be made between communication styles and how it affects a project workflow. Also, more research into how a Fully Integrated workflow works in a real project environment could be conducted. This would be achieved by looking at more articles and blogs about this workflow style. As well as more secondary research a survey like Hewlett Packard Enterprise's (2017) could be conducted only asking more specific questions on integration between designers and developers.

8.0 CONCLUSION

The main aim of this dissertation was to find out the best workflow for designers and developers to use. The current best workflow to practice in industry is Round-Trip/Agile. Communication has historically been an issue for designers and developers. The study found that being mindful of others and keeping a consistent level dialogue is important to create successful outcomes. The final objective was to make predictions about the future of project workflows. Due to the merging skillsets of professionals and the need for constant communication it is expected that a Fully Integrated workflow will be the future norm of the industry.

A Round-Trip workflow is the most popular in industry however the research I conducted showed that constant communication between designers and developers is the ideal scenario. Therefore, I believe that a Fully Integrated workflow is the best methodology for professionals to practice. However, the tools needed to make this workflow feasible, are still in the beta stages so this is not yet a practical method to apply to projects.

The research conducted will give researchers and practitioners an idea of the past present and future of workflows within the web design industry. It is also a starting point for developing new innovative ways of working together in teams. Future research into who in industry is practicing a Fully Integrated workflow would help to confirm my findings. Research into the best tools and the methods used in the process would give practitioners a greater understanding of how a workflow like this would work.

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10.0 APPENDIX

10.1 Questionnaire – Google Forms

Questionnaire Link:

<https://docs.google.com/forms/d/1Rj5aRuOvDeNpdkjkyBb38vUjlc-qBK3YmbzO0BkkmUc/edit>

Questionnaire charts spreadsheet:

<https://www.dropbox.com/s/avd0upv95mo7b2e/Questionnaire-Charts.xls?dl=0>

1) Where do you work?

1. CDG
2. CDG
3. CDG
4. CDG
5. CDG
6. Group CDG
7. CDG
8. Group CDG

2) What is your job?

1. Graduate Designer
2. UI Developer
3. Front end developer
4. Graduate Designer
5. UI Developer
6. Developer
7. Graduate Designer
8. Senior Developer

3) Are you a designer or developer?

1. Designer
2. Both
3. Developer
4. Designer
5. Developer
6. Developer
7. Designer
8. Both

4) Could you design AND build a website by yourself?

1. No
2. Yes
3. Yes
4. No
5. Yes
6. Yes
7. Yes
8. Yes

5) How would you rate your skills in each of these areas?

Site Mapping

1. Comfortable
2. Comfortable
3. Confident
4. Confident
5. Expert
6. Comfortable

User Journey Mapping

1. Comfortable
2. Comfortable
3. Confident
4. Confident
5. Expert
6. Basic

7. Confident
8. Comfortable

Sketching

1. Confident
2. Basic
3. Expert
4. Confident
5. Confident
6. Basic
7. Confident
8. Basic

Wireframing

1. Confident
2. Confident
3. Confident
4. Confident
5. Confident
6. None
7. Expert
8. Confident

Style Guides

1. Confident
2. Confident
3. Confident
4. Confident
5. Confident
6. Basic
7. Confident
8. Comfortable

7. Comfortable
8. Confident

UX Design

1. Basic
2. Confident
3. Comfortable
4. Confident
5. Expert
6. Comfortable
7. Comfortable
8. Basic

UI Design

1. Confident
2. Confident
3. Confident
4. Confident
5. Expert
6. Comfortable
7. Confident
8. Comfortable

Design Mock-ups

1. Expert
2. Confident
3. Basic
4. Confident
5. Confident
6. Comfortable
7. Expert
8. Comfortable

Prototyping

1. Confident
2. Confident
3. Comfortable
4. Comfortable
5. Expert
6. None
7. Expert
8. Comfortable

Critical Analysis

1. Confident
2. Confident
3. Basic
4. Basic
5. Confident
6. None
7. Expert
8. Confident

HTML

1. Basic
2. Expert
3. Expert
4. Basic
5. Expert
6. Confident
7. Confident
8. Confident

PHP

1. None

Interaction Design

1. Interaction Design
2. Comfortable
3. Basic
4. Comfortable
5. Expert
6. None
7. Comfortable
8. Basic

Wordpress

1. None
2. Expert
3. Confident
4. Basic
5. Expert
6. Basic
7. Basic
8. Confident

CSS

1. None
2. Expert
3. Expert
4. Basic
5. Expert
6. Confident
7. Confident
8. Confident

Java

1. Basic

- | | |
|----------------|----------------|
| 2. Expert | 2. None |
| 3. Comfortable | 3. None |
| 4. None | 4. None |
| 5. Confident | 5. Basic |
| 6. Confident | 6. Comfortable |
| 7. Basic | 7. Basic |
| 8. Comfortable | 8. Comfortable |

Testing

1. Testing
2. Confident
3. Comfortable
4. Basic
5. Confident
6. Basic
7. Confident
8. Basic

6) When working on a project how is the team seated?

1. Design team and development team are segregated
2. Design team and development team are segregated
3. Design team and development team are segregated
4. Design team and development team are segregated
5. Design team and development team are segregated
6. Design team and development team are segregated
7. Design team and development team are segregated
8. Design team and development team are segregated

7) How are design visuals presented to developers?

1. Mockups, Prototypes

2. Mockups
3. Mockups, Prototypes
4. Mockups, Prototypes
5. Mockups, Prototypes
6. Mockups, Prototypes
7. Mockups
8. Mockups

8) Do developers do code walkthroughs with designers?

1. If requested
2. Yes
3. Other: Rarely, but sometimes!
4. No
5. No
6. Yes
7. No
8. No

9) What method of communication do you use the MOST to communicate with your team?

1. Messenger (skype, slack, facebook etc)
2. Verbally
3. Verbally
4. Messenger (skype, slack, facebook etc)
5. Messenger (skype, slack, facebook etc)
6. Messenger (skype, slack, facebook etc)
7. Verbally
8. Verbally

10) How often does the whole team meet to discuss progress?

1. Once a week
2. Biweekly
3. Once a day
4. Once a week
5. Once a day
6. Once a day
7. Once a week
8. Other: All the time

11) Which of these workflows do you use the MOST?

1. Round Trip
2. Fully Integrated
3. Round Trip
4. Round Trip
5. Round Trip
6. Round Trip
7. Over the Wall
8. Fully Integrated

12) What development methodology do you use?

1. Agile
2. Other: Chaos
3. Agile
4. Agile
5. Agile
6. Agile
7. Agile
8. Agile

10.2 Time Plans

Table 1 General month-to-month time plan

Chapter	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Plan (Research Report)								
Lit Review								
Introduction								
Methodology								
Results/Evaluation								
Discussion								
Conclusion								
Abstract								

Initially I planned to complete one chapter a month. I decided on doing this because I would be able to take my time writing each section.

Table 2 Semester one time plan

Tasks	1	2	3	4	5	6	7	8	9	10	11	12
Choose Industry												
Initial Research												
Narrow down to 3 topics												
Research into Topics												
Thesis Statement Draft												
Plan Primary Research												
Plan Lit Review												
Blogs/Online Research												
Library Books Research												
Journals Research												
Write Lit Review												

In semester one I aimed to complete the literature review because this is the biggest chapter. This would mean would have finished the secondary research into the topics. I would then be able to come up with some educated ideas for the methodology chapter.

Table 3 Christmas time plan

Tasks	Week 1	Week 2	Week 3	Week 4
Introduction				
Create Questionnaire				
On Placement at CDG				

Due to my questionnaire being for CDG I planned to conduct it while I was working there over the Christmas break.

Table 4 Semester two time plan

Tasks	1	2	3	4	5	6	7	8	9	10	11	12
Methodology												
Send Questionnaire												
Wait for Responses												
Evaluate Questionnaire												
Evaluate Questionnaire												
Discussion												
Conclusion												
Abstract												
Sources												

In semester two I planned to complete the methodology and results chapters within the first two weeks so I could then dedicate the rest of the time to the discussion, conclusion and abstract chapters.

Table 5 Easter time plan

Tasks	10- 13	14- 16	17- 20	21- 23	24- 27	28- 30	1-4	5-7	8
Results									
Lit Review									
Discussion									
Conclusion									
Abstract									
Hand In									

I did not stick to my initial time plan so had to create a new time plan to allow me to finish the dissertation on time. I had conducted my questionnaire by the time it came to Easter so did not need to allow time for that. I split the month into two halves. I aimed to complete the results chapter in three days so I could focus on the larger chapters for the rest of the time.

I set myself a milestone to have the literature review completed two weeks before the hand in deadline. I would then be able to dedicate the rest of the time to completing the three remaining chapters.